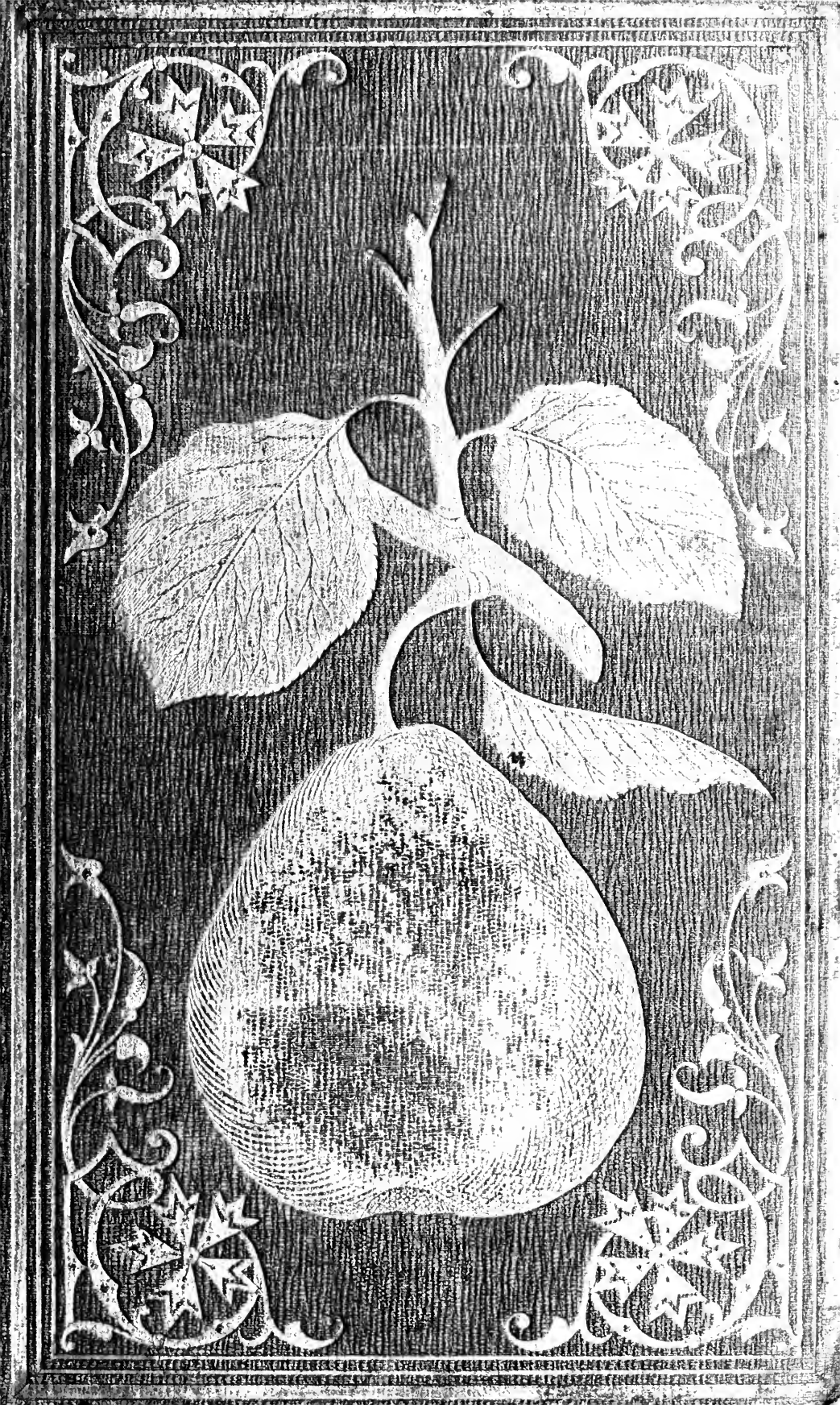

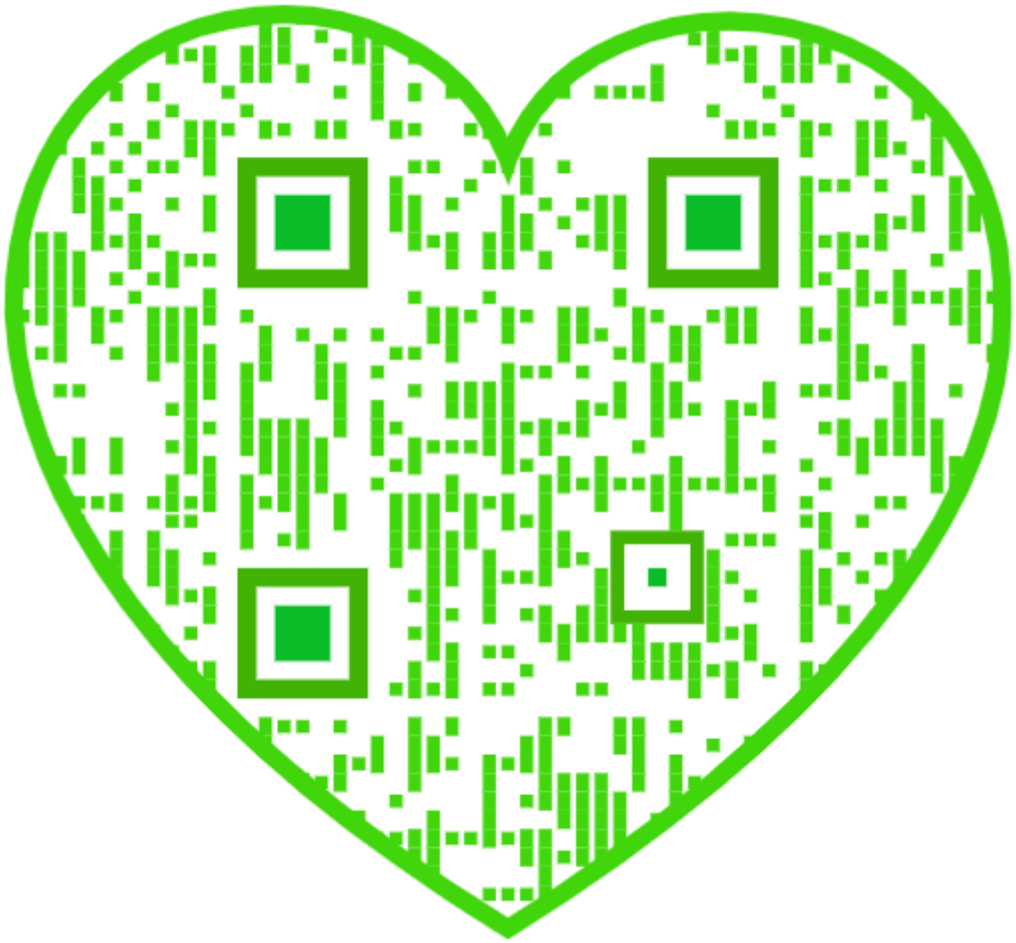

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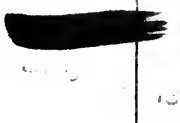

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THE

ILLUSTRATED

PEAR CULTURIST:

CONTAINING

PLAIN, PRACTICAL DIRECTIONS FOR PLANTING, BUDDING, GRAFTING, PRUNING, TRAINING, AND DWARFING THE

PEAR TREE:

ALSO,

INSTRUCTIONS RELATING TO THE PROPAGATION OF NEW VARIETIES, GATHERING, PRESERVING, AND RIPENING THE FRUIT,

TOGETHER WITH

VALUABLE HINTS IN REGARD TO THE LOCALITY, SOIL, AND MANURES REQUIRED FOR, AND BEST ARRANGEMENT OF THE TREES IN AN ORCHARD, BOTH ON THE PEAR AND QUINCE STOCK, AND A LIST OF THE MOST VALUABLE VARIETIES FOR

DWARF OR STANDARD CULTURE,

ACCURATELY DESCRIBED, AND TRUTHFULLY DELINEATED BY NUMEROUS COLORED ENGRAVINGS.

BY AN AMATEUR.

NEW-YORK:
C. M. SAXTON & CO., 140 FULTON STREET.
NEW-LONDON:
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1857.

Entered according to Act of Congress in the year 1857, in the Clerk's Office of the District Court of Connecticut.

PREFACE.

The progress of Horticultural science is an object that is worthy the attention of all. Its benefits are universal, conferring upon the wealthy the richest delicacies, and the most innocent luxuries, while none are so obscure or humble as to be denied the pure enjoyments of its benefits. Any pursuit that is calculated to promote the happiness or increase the comfort and enjoyment of our fellow-men, is highly laudable. It deserves encouragement and should be promoted by every proper effort. No apology therefore need be offered for an attempt, even though humble, to advance a calling so noble and dignified, and so important in its relations to the health and comfort of man, as that of Horticulture.

This manual was not, originally, intended for publication. It originated in the mind of the writer, and was commenced as a private Note Book for his own study and convenience. But the further he proceeded, the more intensely interested he became in the subject, particularly in his collection of specimens and drawings, included in the plan. Having been referred to judicious friends, it was subsequently de-

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cided to increase somewhat its size, and give it publicity. Such as it is, it is now given to the world, with the hope that some information may be given to those who are disposed to engage in the pleasant and interesting avocation. It is not designed to supersede, or even supply the place of the excellent productions of Kenrick, Cole, Thomas, Downing, Manning, Hovey, Barry, Elliott and others, but rather to occupy a place somewhat distinct from each. We have numerous "Hand-Books" in almost all the Mechanical Arts, and also in Agricultural Science, but with one or two exceptions, the Horticultural and Pomological departments have been neglected or entirely forgotten. To supply, in part, this want, "*The Illustrated Pear Culturist*," is respectfully submitted to the public, more especially as the culture of this nutritious and delicious fruit, in its more rare and excellent varieties, is beginning to engage the attention of many in every portion of the country. To render it more useful and complete, many of the finer varieties of the fruit have been represented, which will contribute to the value and interest of the work. These have been obtained from various sources. A part of the original colored specimens were received from France;* others have been collected from the various sources, from which the best drawings or specimens could be obtained; while some of them were drawn directly from the fruits themselves, either produced on our own grounds, or furnished us through the kindness

*After these specimens had been received and partly engraved, for the first time we examined a copy of Mr. Downing's "Fruits and Fruit Trees of America," *with colored plates*. They seem to be identical. With the exception of being rather too highly colored, they are excellent representations of the fruits.

of esteemed friends. In regard to size, generally, the drawings were taken from fair specimens of selected fruit, while some are scarcely the full size of the varieties when fully matured. The description of each has been carefully given, either from the fruit itself, or the best drawings and descriptions that could be obtained. The remarks appended are either the result of our own experience or that of some of the best Pomologists in the country, and we believe will be found generally correct. As the engravings exhibit only the most valuable popular kinds of our Pears, and amateurs and fruit growers are constantly increasing the number of new varieties, about a hundred blank pages are left at the close of the book, on which new varieties, either in simple outline, finished drawings, or colored engravings, may be added from time to time, and descriptions written on the opposite page, the paper being sized and calendered for this purpose.

In regard to the culture of the Pear, the directions are simple, plain and practical, as indicated and warranted by the authors' own experience and that of his friends, to which the valuable experimental knowledge of those who have during many years devoted their individual attention to the subject, has been added. He would acknowledge his indebtedness for some of the most valuable information contained in the work, to the long list of able and experienced Pomologists, whose excellent productions* from time to time have been given to the public, or those valuable contributions to the various Horticultural and Pomological

* A List of some of the most valuable Publications on Fruit Culture, in this country, is given on page 11.

publications, which during the past ten years have contributed so much to advancement of the science in this country.

Should this production contribute in any degree to increase an interest in the cause to which he is so much attached, or tend to the further development of energy and action on the part of any who now are, or hereafter may be engaged in it, the object of the author will have been attained, and his humble efforts fully rewarded.

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ALPHABETICAL LIST

Of the different Pears illustrated and described in the work.

BARTLETT,
BEURRE BOSC,
BEURRE CLAIRGEAU,
BEURRE D'ANJOU,
BEURRE D'AREMBERG,
BEURRE DIEL,
BEURRE EASTER,
BEURRE GIFFARD,
BLOODGOOD,
COLUMBIA,
DEARBORN'S SEEDLING.
DIX,
DUCHESS D'ANGOULEME,
DUCHESS D'ORLEANS,
FLEMISH BEAUTY,
FORELLE,
FREDERICK OF WURTEMBERG,
GLOUT MORCEAU,
GOLDEN BEURRE OF BILBOA.
HOWELL,
LAWRENCE,
LOUISE BONNE DE JERSEY,
MARIA LOUISE,
OSBAND'S SUMMER,
SECKEL,
TYSON,
URBANISTE,
VAN ASSCHE,
VAN MONS LEON LE CLERC.
VICAR OF WINKFIELD,
WHITE DOYENNE,
WINTER NELIS.

POMOLOGICAL PUBLICATIONS.

For a large amount of valuable and interesting information in regard to the culture of the Pear, we would refer our readers to the following excellent publications.

The Fruit, Flower and Kitchen Garden. By Patrick Neal. 1851.

The Fruit Garden. By P. Barry. 1851.

The American Fruit Growers' Guide in Orchard and Garden. By F. R. Elliot, 1855.

American Fruit Book. By S. W. Cole, 1851.

The Cultivator, a Monthly Journal of Agriculture, &c., edited by Luther Tucker, Albany, continued to the present time.

Downing's Fruits and Fruit Trees of America. 1845.

A Treatise on the Culture and Management of Fruit Trees. By William Forsyth. London, 1824.

Lindley's Guide to the Orchard. American edition, with additions by Michael Floy. New York, 1845.

New American Gardener, containing practical directions for the culture of Fruit and Vegetables. By Thos. E. Fessenden. Boston, 1828.

The Horticulturist, a Monthly Journal of Horticulture &c., Published by Luther Tucker, and edited by A. J. Downing, from 1846 to 1852, and continued to the present time. By R. Pearsall Smith, publisher, and J. Jay Smith, editor.

The Magazine of Horticulture, Botany, and Rural Affairs. Conducted by C. M. Hovey. Boston, 8vo. monthly nos., 1834 to the present time.

The New American Orchardist. By William Kenrick. Boston, 1844.

The New England Fruit Book.. By R. Manning, 2d ed. enlarged. By John M. Ives, Salem, 1844.

The Pomological Manual. By William R. Prince. New York, 1831, 2 vols.

Transactions of the Massachusetts Horticultural Society. 1842 to the present time.

Transactions of the New York State Agricultural Society. 1842 to the present time.

INTRODUCTION.

Horticulture was the primeval occupation of man. The great Creator himself exemplified and honored the noble employment in planting the first garden that cheered the earth; and recognized the calling as divinely appointed, in "putting man in the garden to keep, and to dress it." But the delightful bowers of Eden, clad in verdant beauty, blooming with lovely flowers and redolent of perfume, were incomplete without their luscious fruits. Although there "the Lord God made to grow every tree that was pleasant to the sight," His plans were not perfected until those "good for food" rendered His glorious and benevolent work complete. Without these, man's happiness, even in Eden, would not have been perfect. With a single exception, our first parents were "commanded" by the Almighty, freely "to eat the fruit of every tree in the garden." As clearly indicated by the divine command, these were intended to constitute the innocent and nutritious diet of man in his state of sinless purity before the fall. The flaming sword that so strictly guarded the tree of life, left the pleasant fruits accessible to all, as a significant pledge of His kindness and love, which ought never to be thoughtlessly overlooked, or lightly esteemed.

Horticulture is an employment that commends itself to every class in the community. To the man of wealth, and those in the common walks of life—to individuals of the highest intelligence and those of more humble capacity—to the young and the more advanced in years, it is equally and pleasingly adapted. It is a most healthy, delightful and

interesting employment. While affording agreeable and profitable exercise for the mental and physical powers, it is equally conducive to the sustenance, the health, and the enjoyment of our fellow men.

The employment of the fruit grower is one which is of the most elevating and ennobling character. He becomes delightfully enthusiastic in his avocation. A pleasure unknown to others takes possession of his mind. As he watches progressively the opening germ, the tender shoot, the growing stock, the spreading branch, the swelling bud, the expanding leaf, the blushing flower, and the ripening fruit, until in all its rich development of golden or crimson tint, it blushes in the sunbeam; his heart is filled with pleasing wonder and admiration, and his mind will instinctively revert to the great Creator,

"And look through nature up to nature's God."

He cannot be an ardent and enthusiastic admirer of the beautiful and the bounteous productions of nature, and not be a *better man.*

It is not important that a man should possess extensive grounds or multiplied acres. It is not requisite that his soil should be of a certain character, or a particular chemical analysis. In a country so extensive and diversified as ours, and with a climate embracing every variety, from the sunny south, to the hoary icebergs of the north, and having such an extensive and almost exhaustless variety of fruits at command, admitting of every description of temperature, soil and culture, very few, comparatively, need excuse themselves for not improving their taste in this interesting department. The occupant of the most circumscribed garden plot may enjoy the luxury of growing his own table fruits. Every inch of soil, of whatever quality or strength, whether wet or dry, rich or poor, sand or muck, loam or gravel, may be modified, and if necessary, im-

proved, and usefully appropriated to the production of some variety of fruit, beautiful to the eye and delicious to the taste. With a knowledge of these facts it is strange that comparatively so little importance has, by the great mass of community, been attached to the culture of fruit, and that so large a proportion of our citizens are still willing to deprive themselves of so much real enjoyment as this truly ennobling employment is calculated to impart.

But this is not all, and to many in this gold-loving and wealth-seeking age, it is, perhaps, not the strongest argument that can be adduced in its favor. If we estimate the occupation by dollars and cents merely, it will be found to compare favorably in its results with the most coveted offices of emolument and distinction. Where the fruit grower in this country has assiduously followed the business as a profession; with scarcely an exception his success has been certain and his remuneration abundant. Witness the extensive vineyards of Mr. Longworth of Cincinnati, one of the most wealthy men in the country; or the noble and productive peach orchards of New Jersey and Maryland, yielding in some cases, $5,000, $10,000, and even $15,000 per annum from a single plantation. We might also refer to the Pelham farm in Ulster Co., New York, whose distinguished proprietor exports his magnificent crops of apples by thousands of barrels every season, which in England sell readily for five to fifteen dollars per barrel, yielding an abundant return in sterling profits on their culture.

Many other instances of successful fruit culture might be named, which, although on a smaller scale, might be adduced as proofs of its profits and importance. One individual at Tarrytown, N. Y., sells in a single season $700 worth of Bartlett and Virgalieu pears, from a single acre of ground; and instances are not rare where the yield of fruit from an acre of well cultivated trees, exceeds $1000. The pears from

a single tree, (Bartlett) in a garden in the vicinity of the writer, only seven years from the graft, and occupying but a few feet of ground yielded last season (1855) more than three bushels of fine fruit, worth on the tree, about $4 per bushel. A single pear tree in Illinois is now standing, which has borne *one hundred and eighty-four bushels of fruit of a good quality and fine flavor, in one season.* Many of the more rare and fine varieties of the pear readily command in the Boston and New York markets, $2.00 to $3.00 per dozen, and the supply is altogether inadequate to the demand.

With proper culture and strict attention, the *fruits* of our soil would soon exceed in value the *gold* that is dug from it, and in regard to the real benefit conferred upon the millions of our fellow men around us, the former would by far outweigh the latter.

But we would not appeal to the simple love of gain in any, as a motive to engage in this most laudable pursuit. We admire the disinterested ambition and the praiseworthy zeal of many noble and gifted men, whose names are worthy of high and honorable distinction. With pleasure we record the names of Buell, Fessenden, Hovey, Kenrick, Lowell, Downing, Wilder, Dearborn, Cole, Barry, Manning, and Elliott, who, with many others, by their assiduous labors, patient investigations, and enthusiastic zeal, have done so much for the advancement of horticulture in this country. To such men, as a community, we are under obligations that cannot be adequately estimated. To those that have been called away from their sphere of duty we would accord all honor, and inscribe a grateful tribute to their memory ; and to those who are still engaged in this interesting department, we would bid God speed in their noble calling, believing that they have a high and happy destiny to fulfil, in the advancement of Pomological Science, in our prosperous and rapidly extending country.

HISTORY OF THE PEAR.

The Pear is indigenous only in Europe and Asia, and is mentioned by the early writers as growing very abundantly in Syria, and other countries in the East. Pliny, the celebrated naturalist, makes particular mention of the Pear, and states, that although the culture of fruits had been carried to a high degree of perfection, it was a long time ere a single new variety had been obtained by the skill of man. It was afterwards introduced into France and Britain, and at the commencement of the sixteenth century, more than sixty varieties were described as being produced in the latter country, and in 1724, Miller, a distinguished botanist, enumerates eighty varieties which were at that time cultivated

During the next half century succeeding the time of Miller, but little was done in producing new varieties of the Pear, until after a long series of experiments by Van Mons of Belgium, and Doctor Knight of the London Horticultural Society, both of whom at last were very successful in obtaining many new kinds, which were, and still are, celebrated for their excellence, although more than fifty years had been previously occupied in experiments by Duhamel, Alfray and others, without obtaining a single improved variety.

The Massachusetts Horticultural Society which was established in 1829, has elicited a wonderful increase of interest in fruit culture in New England. New and improved varieties of the Pear have abundantly rewarded the praiseworthy efforts of some of its most active and enthusiastic members. Nearly one hundred additions have been made to the list of valuable Pears in this country, while distinguished Pomologists in Europe have added largely to the number, until about *nine hundred* different varieties are now cultivated. The London Horticultural Society alone, have about seven hundred kinds in their grounds now in cultivation, while both in Europe and this country, new and improved varieties are constantly being added to the list.

The origin of the interest now felt in the culture of the Pear in this country, is mainly to be attributed to the few enterprising and energetic individuals who have exerted a great influence in this department. The Hon. John Lowell, Samuel Perkins, Thomas H. Perkins, Marshal P. Wilder, H. A. S. Dearborn, J. P. Kirtland, the lamented A. J. Downing and others, have, by originating new kinds, and the importation and dissemination of valuable varieties, contributed very essentially to the general improvement of the Pear culture in this country, while the demand for the Trees and Stocks in Europe is so great, that one single nursery, that of Andre Leroy, at Angers, France, devotes more than *two hundred acres* to the propagation of the Pear alone, and cannot now supply the increasing calls for the quantities annually ordered.

The Pear Tree under favorable circumstances is remarkable for its longevity. It seems to retain a remarkable tenacity for life, even for centuries. M. Bosc describes several which are more than four hundred years old. The Stuyvesant Pear Tree in New York, and the Edicott Tree in Dan-

vers, Mass., are known to be over two hundred years of age. In Herefordshire, England, a Perry Pear Tree has produced twenty-five hogsheads of Perry in a single season. It resembles the *Banian* Tree in some respects; the pendant branches resting on the earth and taking root, produce others, which in turn perform the same office. Fifty years ago, it covered half an acre of ground, but is now reduced considerably in size. Rev. H. W. Beecher describes a remarkable Pear Tree growing near Vincennes, in Illinois, which measures near the earth, ten feet in circumference, and its branches cover an area of sixty-nine feet in diameter.

While the Pear Tree is naturally hardy and prolific, it is subject to diseases which frequently prove disasterous to the hopes of the amateur and others engaged in cultivating its fruit. These, however, by care and skilful management, may be in a great measure overcome, and by close observation, experiment, and an increased scientific knowledge on the part of Pomologists, we trust may be ere long entirely removed.

ITS PROPAGATION.

From the Seed.—If it is desired to commence with the seedling, a mellow, rich soil, (old pasture or cleared woodland is preferable,) of a friable loamy nature, with a dry subsoil, should be selected. The locality should, if possible, be an easterly or south eastern inclination, and sheltered by a high wall, belt of trees, or what is better, a piece of woodland, to protect the young Stocks in a measure from the severe north and north-west winds, during the first winter. The ground should be made perfectly mellow by deep ploughing and subsoiling to the depth of twenty inches, or what is more preferable, trench with the plough or spade to the depth of eighteen or twenty inches, and fill the trenches

with a compost of blacksmith's cinders, slacked lime, leached wood ashes, meadow or swamp muck, well rotted barnyard manure, and leaf mold, in the proportion of one part *each* of the former, to two of the mold. These should be finely pulverized, well incorporated by being thoroughly mixed, and slightly covered with the mellow soil. In this plant the seeds in drills, about the first of May, and the result will be a fine growth of handsome stocks fifteen to twenty inches in height the first season. The trenches or drills may be from two and a half to three feet apart, to suit the convenience of the planter. Many who have manured their seedling pear plots with a heavy dressing of stable manure alone, complain of the ravages of the rust which has very much injured the stocks. Special manures for the pear seedlings are congenial to the affinities of this tree, and almost any compost which contains muck, the phosphates, lime, wood ashes, &c., in liberal proportions, are favorable to the culture of the pear. Mr. John Washburn of Plymouth, Mass., in a note to Col. Wilder of Boston, Sept., 1848, remarks: "I have a fine lot of pear seedlings, raised from twelve bushels of pear pomace, sown in rows, (700 feet in all.) They were manured with compost in the following proportions: One load muck, two loads stable manure, two barrels iron rust, one barrel bone dust, two barrels wood ashes. The whole was composted in last September—the manure applied in the fall, and the seed sown May 1st. Other seeds sown on the same land without this compost, but with stable manure, have *rusted* badly, and are not one quarter the size of the first lot, which are fine, strong stocks." In all cases a liberal application of muck well decomposed with air slacked lime, or a solution of potash, will be found particularly adapted to the successful cultivation of the pear stock.

By Grafting or Budding.—The Seedling Stocks may

be grafted with the different varieties which may be desired, when they are two years old. The best time for this is when the stock is about half an inch in diameter. This may be done on the Seedlings as they stand, after being planted out in the nursery rows at the usual season of grafting, or they may be taken up the fall previous, and "*heeled in*," as it is technically termed, by being laid down at an angle of forty-five degrees, either in the cellar or root house, and covered with earth until late in the winter or early spring. They may then be grafted with scions (cut when no frost was in the wood,) near the crown of the root or just above the line of the surface of the earth, as they stood in the seed bed. This is generally performed by the *whip* or *tongue* method as described in the chapter on grafting. The young trees may then be carefully packed in sand which should entirely surround and cover them above the union of the graft, and kept at a low temperature, (but above the freezing point,) until the season for planting out.

For *budding*, should this method be preferred, the month of August is generally selected. The bud should be inserted four or five inches above the surface of the ground, after the method recommended in our remarks on budding.

GRAFTING.

The advantages and importance of grafting are obvious. It was one of the most interesting and important discoveries ever made in relation to the production of excellent varieties of fruit. By this process the most valuable and scarce kinds may be multiplied and increased; a hardy and vigorous habit may be imparted to more tender varieties by being grafted on hardy stocks; seedling trees may be early brought into bearing; the most worthless and undesirable kinds of fruit may be changed to those which are rare and valuable sorts; trees may be rendered dwarf in their habit by grafting on stocks of slower growth; together with other advantages too apparent to require even a passing remark.

To effect this, however, various methods are employed according to the fancy of the skill of the operator. The most common in use among pomologists are denominated *cleft* grafting, *splice* grafting, *side* grafting, *whip* or *tongue* grafting, *saddle* grafting, *crown* grafting, and *root* grafting.

Cleft Grafting.—Until a few years past this mode was generally followed. It is a simple and easy, but somewhat clumsy method, having, however, some advantages over the others. The scion is more firmly secured in its place, and forms a stronger union with the stock, during the first stages of its growth.

The operation requires a sharp saw of convenient size, with fine teeth, moderately set; a grafting knife having a wedge

attached to the handle, a sharp paring or pruning knife to smooth the end of the stock, a small mallet, and a supply of grafting cement or clay. First saw off the stock wherever it is designed to insert the scion; smooth the end with the paring knife; then with the grafting knife split the stock carefully downward about two inches; gently open the cleft with the wedge, and having previously prepared the scion by smoothly tapering about one and a half inches of its lower end to a slender wedge like form, a little thicker on the edge to be placed on the *outside* of the stock, insert the same within the opening produced by the wedge, and carefully adjust it so that the line of junction between the bark and wood, or the *inside of the bark* on both scion and stock shall exactly correspond. The wedge may then be removed, and the grafting process is completed. The scion should contain at least two good buds, and so cut, that when inserted, the lower one shall be just below the top of the stock, on the outside edge of the graft. Nothing remains but to apply the cement or clay, so that the entire end of the stock and joints of the adjustment of the scion shall be entirely covered, to exclude effectually the air and moisture. If cement is used, it may be done by applying it in a warm semi-fluid state, or, after working it in the hand, press it with the fingers upon the end of the stock and over the joints of the graft. If clay is preferred, it should be formed into a ball, which should entirely surround the stock and lower parts of the graft, in which case the lower bud on the scion should be left a little *above* the top of the stock to avoid being covered with the clay. For a small stock one good scion is sufficient. When it is an inch or more in diameter, two are frequently inserted, one of which may afterwards be removed if necessary.

Splice Grafting.—When the stock and scion are the same or near the same size, this method is often very suc-

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cessful. First, with a slanting stroke of the knife upward, cut off the top of the stock where the graft is to be attached with a slope about one and a half inches long. Next cut the scion with a smooth downward stroke with the same slope as the stock. This done the two will fit each other and a very neat and perfect joint be formed between them. Should one differ from the other in size, *one side* of each should perfectly match the other, or both make an even surface on *one side* of the stock. Bass matting, with cement, or what is better, composition cloth, hereafter described, may then be neatly and closely wound around the joint and the work is finished.

SIDE GRAFTING.—This, in some respects, resembles budding. First, cut a T in the bark of the stock where you desire to introduce the graft. Immediately above this, cut the bark in a slanting direction downwards from the surface to the wood, at angle of about fifteen degrees with the stock, and remove the portion of bark between this cut and the top of the T. Prepare the scion by sloping the lower end of one side, about an inch and a half in length, entirely through, as in splice grafting, and sharpen the extreme point on the back side of the slope a very little, that it may slide under the bark of the stock more readily without disturbing the bark of the scion; then carefully raise the bark each side of the perpendicular cut in the stock, and gently press down the scion into its place underneath it. Hold the scion in its place by pressing the thumb firmly upon it, and bend the top a little outward, then bind it to the stock with tape or bass matting, and apply the composition. In this way new branches may be produced without cutting off the stock above.

WHIP OR TONGUE GRAFTING.—This resembles splice grafting with simply a tongue added to secure more firmly together the scion and stock. Although technically termed

tongue grafting it is in reality the strongest method of *splice* grafting. The stock and scion should be as nearly of a size as possible, and both cut with a similar slope, one upward and the other downward, each being about one and a half inches long, as in the former method. The *tongue* is formed by simply cutting *downward* in the stock with a slight pressure of the knife, and *upward* in the scion, gently pressing the wood outward from each cut, and forming a tongue and notch in each. These being made about the middle of the slope, and each corresponding with the other, the stock and scion being pressed together endwise, the tongue of one enters the notch made by the cut in the other, and very simply and effectually unites the two. If the size of the scion does not exactly correspond with that of the stock, it should be made to form an even surface on one side, the bark on the scion perfectly fitting to that on the stock. The usual band of bass matting is then bound around the parts, and the composition applied to cover the joints. Seedling stocks are generally grafted by this method.

Saddle Grafting.—This mode differs from the others by making the stock a perfect wedge, tapering each side upward to the centre, with a smooth easy slope. The scion is then fitted to it by being divided in the middle, and each side of the split tapered to a thin flat point. The portion of the scion so removed is made to fit the wedge shape of the stock, forming a complete *saddle* for the same. This, if not the exact size of the stock, should form an even joint on one edge of it. The bands and composition are applied as usual. This method is but little practiced unless on stone fruit.

Crown Grafting.—This mode of uniting the scion with the stock is the most simple and expeditious of any in use. It consists in removing the branches or entire top of a tree, by sawing them smoothly off where the scions are to be in-

serted. Cuttings are made from the top downward, in the bark around the stock, in as many places as may be desired, according to its size. The scions are prepared precisely as for *side grafting*. They are then slipped underneath the bark of the stock, which has been previously raised for that purpose, and the whole end of the stock and joints of the scions covered with the composition, and bound around with matting or grafting cloth. This is the most usual practice for all standard trees of a large growth, particularly those too large for cleft grafting.

Root Grafting.—This is performed on the roots, which are divided or cut in parts of about four or five inches in length. For large roots, cleft grafting is generally practiced; for the smaller roots, splice grafting is better. Apply the composition in the same manner as for the branches. This mode of grafting should be performed late in the winter or early in spring, and the stocks set in boxes of earth, out of the way of frost until the time of planting.

Cutting and Saving Scions. The best time to cut scions is a few weeks before setting, but it may be done any time between the fall of the leaf and the time of grafting, when they are not frozen. They should be selected from the most vigorous and healthy shoots of the growth of the previous year, and if cut during the fall, they should be placed in layers, either in mellow, sandy loam, or clear sand, about six inches deep in a dry cellar, root house, or some place in the garden where water will not settle. Scions kept in this manner almost invariably come out very fresh and plump in the spring. Should it be preferred, the scion when cut in the fall, may be packed in moss, a little moist, in tight boxes, or closely packed in damp sawdust, and kept in a cool cellar until wanted. Too much moisture should be avoided, it being injurious to the scions. Should they be

found too dry, they may generally be restored by being wrapped in moss and buried in the earth, or in moist sand, from ten days to two or three weeks, according to the degree of moisture which is necessary to restore the young wood to its original condition.

Regrafting or Double Working.—This is very advantageously employed in cases where it is desirable to dwarf a variety that will not unite well with the Quince stock, or when the fruit would be deteriorated by so doing. In such instances the variety requires to be *double worked.* This is simply grafting or budding some strong growing kind on the Quince, and using this graft as a *stock* in which to insert the variety desired. By this means we may possess many varieties in the dwarf form, that could not otherwise be obtained but by the old method. Mr. Barry says, "By this means we have fruited the Dix in two years, when otherwise it would have taken not less than seven." Certain it is, that great improvements in the form and vigor of the tree, and the quality of the fruit, may be made by by *double working.* As a general rule, the Dutchess d'Angouleme on the Quince, is an excellent stock on which to regraft the more feeble varieties.

Composition or Cement for Grafting.—Any composition or cement that will effectually exclude the air and wet is suitable for this purpose. Three parts rosin, two of bees-wax, and two of good beef tallow, or two of rosin, one of bees-wax, and one of tallow, will make a very good cement; also, three parts rosin, three of bees-wax, and two of tallow, is recommended by Mr. Downing. The proportions may be varied somewhat, but either of the above are very good for the purpose. The most convenient way of using it, if applied without melting, is to keep it in warm water in cool weather, and cold water in warm weather. In working it

with the hand a little grease should be used to prevent its sticking. Care should be taken to cover all the newly cut wood, and every joint made by uniting the scion with the stock, completely excluding air and moisture.

GRAFTING CLAY.—This is but little used, as the composition above described is better and more neat in its application, and costs but little. Two-thirds clay, and one-third horse or cow dung, mixed with a little hair, well incorporated together, is a good preparation for excluding the air and moisture, from newly grafted wood. Its consistency should be such that it can be easily applied and moulded into shape with the hand.

GRAFTING CLOTHS OR BANDAGES.—These are easily prepared. Take any old cotton calico, or cloth, and completely saturate it with the melted composition (before described,) and roll it up loosely for use. When it is wanted for grafting purposes, unroll and tear it into strips of any desired length or width, according to the size of the stock which is to receive the graft. Two or three turns of one of these strips around the grafted stock, will be all that is required to secure the scions in their places, and generally will be entirely successful in the exclusion of both air and moisture from the graft. These bandages are very useful in the various kinds of *grafting*, as they soon become tender and allow the swelling of the graft and stock without injury.

BUDDING.

Budding is only another method of grafting. It is the usual method of propogation in nurseries, and generally performed on young trees from one to three years old, and consists in taking a *bud* simply, of the variety desired, and transfering it to another stock of a different variety. The proper time for this operation is during the growing season of the tree. For the Pear the month of August is probably the best.

In all cases of budding, two conditions are necessary to the success of the operation, viz: The sap must flow freely, and the bark readily separate from the stock to be budded, and the buds to be inserted perfectly developed. The former is always easily known, and the latter may be determined by the formation of the *terminal bud* on the shoot from which the buds to be inserted are taken. If the former is *complete* and fully developed, there may be no doubt of the vigor of the latter.

The implements required for budding are few and simple. A pruning knife to remove any branches that might happen to be in way of the operation, and a budding knife with a fine, keen edge, to remove and prepare the buds, and make the required incisions, and the bands for tying in the buds.

Mode of Operation.—Having the stocks, buds and implements ready, the operation is very simple and easy. The process is so clearly and intelligibly described by Mr. Barry, in his excellent book, "*The Fruit Garden*," that few need fail of success. It is as follows:

"The shoot to bud from is taken in one hand, and the budding knife in the other, the lower part of the edge of the knife is placed on the shoot half an inch above the bud to be removed, the thumb of the knife-hand rests on the shoot below the bud, a drawing cut is then made, parallel with the shoot, removing the bud and the bark to which it is attached, half an inch above, and three-quarters below it. This is the usual length, but it may in many cases be shorter. The cut is made just deep enough to be below the bark, a small portion of the wood is always taken off with it, and if this adheres firmly it should be allowed to remain; if it parts freely, it should be taken out, but in doing so the *root* of the bud must be carefully preserved, for if it comes out with the wood, the bud is useless. The root of the bud, as it is termed, is a small portion of wood in the hollow part of the inside of the bud. A smooth place on the stock, clear of branches, is then chosen, where two incisions are made to the depth of the bark, one across the end of the other, so as to form a T, the bark on the two edges of the perpendicular cut is raised with the smooth ivory handle of the budding knife, and the bud is inserted between them; the upper end of the bark attached to the bud is cut square, to fit to the horizontal cut on the stock, the bass string is then wound around tightly, commencing at the bottom, and covering every part of the incision, leaving the bud itself, and the leaf-stalk, uncovered, the string is fastened above the horizontal cut, and the work is done. The success of the operation, as far as its execution is concerned, depends, in a great measure, on

smooth cuts, an *exact fit of the bud to the incision made for it*, *secure*, *close tying*, that will completely exclude air and rain water, and the quick performance of the whole.

Where only a few buds are to be set, a cool, moist day or evening should be selected, as they will be more certain to succeed than if inserted during the middle of a hot, dry day.

The chief difficulty experienced by beginners in budding, is the proper removal of the bud. When it happens that the knife passes exactly between the bark and wood, the bud cannot fail to be good; but this rarely happens—more or less wood is attached, and the removal of this is the nice point. Where the buds are flat, the difficulty is less than when they have large, prominent shoulders, as the plum and pear have, in many cases. When all the wood is taken out of these, a cavity remains which does not come in contact with the wood on which the bud is placed, and therefore, although the bark unites well, the bud will not grow. Sometimes, these are separated by making an incision through the bark; then lift the edge of the bark attached to the bud with the knife, and push it off with the fingers. A safer way still is to cut around the bud, and draw a strong silk thread between the bark and wood, thus removing the bud in perfection.

Bands for Tying.—These are obtained from old furniture matting, cut up into a suitable length. Prepared bass wood bark may be obtained at the Agricultural stores; cotton wicking, coarse woolen yarn, &c., are frequently used. India rubber bands cut from thin sheets of this material are also sometimes applied. The common bass matting however, well softened by wetting, is cheap, convenient, and well adapted to the purpose.

Cutting the Buds.—The young shoots in the requisite

condition are cut from the tree, the leaves removed, leaving a part of the leaf-stalk on the shoot to hold the buds by. The small undeveloped buds near the base of the shoot should not be used. All the others may be removed and inserted as above described.

PRESERVING THE BUDS.—Should it be necessary to preserve the buds for future use, the leaves should be removed immediately after the shoots are cut, and the shoots packed in slightly dampened sawdust, and placed in a cool cellar. In this way they may be kept several days.

TRANSPLANTING.

The operation of transplanting is one of much importance, as on the manner in which the tree is set, depends in a great measure its thriftiness and ultimate fruitfulness. If the trees to be set are small, and it is desired to plant them in nursery rows, all that is required is to have the soil well prepared, and to trench in straight rows, at such distances as may be desired. The trenches should be thrown out of a sufficient width to allow ample room for the roots, and about fifteen to eighteen inches deep. This will allow a little of the best pulverized soil to be placed in the bottom of the trench. Cut off the tap roots from the trees, and carefully remove all broken or injured roots, by cutting them off smoothly just back of the broken or injured part. A little top pruning should accompany the transplanting; or what is deemed by many equivalent thereunto, a portion of the *buds* may be removed from the branches to restore the equilibrium of power between the roots and the top.

The tree should be carefully placed in the trench, at the same depth as in the nursery ground from which it was

taken, the roots spread out horizontally, and as nearly in their natural position as possible. Give them a free drenching from your watering pot, and immediately fill the trench with well pulverized soil, taking care to work it in thoroughly amongst the roots of the tree as the trench is being filled.

The roots being wet, will cause an immediate adhesion of the soil to their surface, and the simple pressure of the foot around each tree will complete the process. Unless the season of planting should be unusually dry, the young trees will require no watering ; but a thorough *mulching* of coarse straw or litter around each row of trees will be exceedingly beneficial, by keeping the earth moist, and the temperature even.

Trees of Medium Size.—Much has been said in regard to the removal and transplanting of trees for the garden and orchard, but the plain and practical instructions on this point contained in Mr. Jaques' modest little "Treatise," so nearly accord with my own views and experience, that I have no hesitation in recommending them to others.

1. Preparation for Setting.—"Dig a hole, (avoiding the sites of old trees,) five to seven feet in diameter, and fifteen to twenty inches deep, placing the sods, if in sward-land, in one heap, the soil in another, and the subsoil in a third. The diameter of the hole ought to be, at least, three times that of the clump of the tree's roots. Holes of this size, and in deep, rich land, even smaller ones will answer; but if the planter has patience to dig still wider, and to any depth less than three feet, he will find himself amply repaid, in the better growth and health of his trees. If holes are dug over twenty inches deep, they may be filled up to that depth with cobble stones, old bones, or even gravel. The rest of the hole should be filled with a mixture of the soil,

subsoil, and rich black loam, or well rotted compost manure, to the height where it is proper to place the tree. With the hand or spade, shape the soil for the roots into the form of a little cone, on which to set the hollow in the center of the clump of roots. If this is done some weeks, or even months, before setting the tree, it will be all the better."

2. PREPARING AND PLACING THE TREE.—"If the ground is dry, or if the roots have been much exposed to the air since the tree was taken up, soak the roots and the lower part of the trunk in water, twelve or twenty-four hours. Cut off all bruises and broken ends of roots smoothly with a knife, and shorten-in the longest, so that the clump of roots may have a somewhat circular form. In cutting a root, always enter the knife on the under side, and bring it out with a slope to the upper side, so that the fibres which may shoot out from the edges of the cut, shall strike downward into the ground, instead of upward, as they would were the cut made as it commonly is. If the tree is quite large, and a considerable quantity of its roots has been lost in removing it, its branches must be shortened back, or the alternate buds thinned sufficiently to restore the balance of power between the parts below and those above the ground, for reasons already explained. This being done, set the tree and gently press it down upon the place designed for it. As there will be a tendency for the tree to settle down in its new location, the planter should aim to have it stand higher, rather than lower than it stood previously to being moved, remembering that nothing is more fatal to the growth of a tree, than to bury its roots *unnaturally* deep in the ground. Trees of medium and large size, set upon a very gentle elevation like a turtle's back, succeed admirably; and so, if a tree should by accident be set rather to high, the ground

can be raised a little around it; or, if this be omitted, the roots will easily strike downward, whereas, the roots of a tree too deeply set, cannot shoot upward, except in the very offensive form of suckers."

3. FILLING UP AROUND THE TREES.—"With good, rich soil, fill up under, among, around and above the roots, straightening them out with the fingers, and placing them in a fan-like and natural position,—being very cautious not to leave any, even small, hollow places amongst them. If the root is one sided, make the most you can of the weaker part. At this stage of the work, if you have patience, it is an excellent plan to make a circular dam around the edge of the hole, and keep it full of water, for a half hour or more. Next, put in a little more earth, pressing it around the tree with the foot. After this, throw on an inch or so of loose earth, and the work is done."

"Another mode of filling up around the trees, called *mudding-in*, has proved very successful. Make the circular dam around the tree first, or, as soon as it is needed, then let one person slowly sift the soil into the hole upon the roots, while another constantly pours in the water, thus keeping the earth in a thin, muddy state. This operation will require considerable time, but its success is perhaps more certain than by any other mode."

"The best compost manure for trees, where the soil is poor, is a mixture of two parts of muck or peat-earth with one of barn-yard manure, adding, if convenient, a small quantity of wood ashes or pulverized charcoal. If these have been mixed some months, or even a year or two previously to being used, the composition will be all the better. Never put raw manure in contact with the roots."

4. AFTER-TREATMENT.—"When the tree is transplant-

ed in the fall or winter, it is extremely advantageous to place a conical mound, consisting of from five to ten bushels of soil and compost manure, closely around the tree, to save it from being disturbed by the action of the frost. This mound should be removed in the spring. It is generally best to put a stake down, to which the tree may be tied, for the first season after being set. This ought to be done before filling up the hole, in order not to bruise the roots. Large cobble stones laid close to a tree, answer quite as good a purpose."

A liberal mulching is very important in the after-treatment of newly planted trees. Each tree should have three or four feet around its trunk, covered to the depth of three or four inches, with coarse litter from the bard-yard. This protects the roots of the tree, prevents evaporation of moisture from the soil, and contributes to that evenness of temperature most favorable for facilitating the growth of the newly formed roots.

TIME OF TRANSPLANTING.—Differences of opinion in regard to this subject prevail among our best Pomologists; but as a general rule, I prefer the spring for all trees of small or medium size. For standard trees, or in removing wild Pear or Perry stocks for grafting, either early in the spring or fall will answer, although the latter may be preferable, particularly in dry and sandy soils, always remembering however, to transplant *as soon as possible after the fall of the leaf.*

DWARFING.

Many varieties of the Pear may be conveniently and advantageously cultivated as *Dwarfs*. In France, this mode of culture has been very extensively adopted, and it has also become quite prevalent in England. In this country it is likewise becoming, with experienced cultivators, a favorite method, particularly for garden and border culture. Indeed, many kinds of the Pear produce larger and finer specimens of fruit, when dwarfed, and a few of the European varieties will not succeed well in any other way. This is effected by grafting or budding the Pear on the stock of some tree of slower growth, such as the Quince, the Mountain Ash, or even the common White Thorn. The *Angers Quince*, however, is the stock that is almost universally used for this purpose. The Pear, with the exception of a few varieties, will unite readily with it, and in some instances succeed even better than on its own stock. On the Quince, the Pear commences bearing in three or four years from the grafting, and will come to maturity in from ten to fifteen years, according to the variety. A highly cultivated Dwarf Pear tree, of the Dutchess d' Angouleme, Louise Bonne d' Jersey, Beurre Diel, or Vicar of Winkfield varieties, will at matu-

rity frequently bear from one to two bushels of fruit,* equal or superior to the same varieties, grown on their own stock; while the small space they occupy, and the beauty of the tree, when trimmed in the pyramidal form, is a very important desideratum to the cultivator.

DWARFING BY ROOT PRUNING.—This is another method of dwarfing which prevails extensively in England, and is highly recommended by fruit growers in that country, both as the means of giving the tree a dwarf habit, and inducing greater fruitfulness. Mr. G. Jaques, in his excellent "Practical Treatise on the Management of Fruit Trees," thinks, from his own experience, that it may be equally adapted to our soil and climate. Trees of one to three inches in diameter, branching low, and of a stocky habit, are the best subjects to operate upon. The process of forming them, says the writer, is simply as follows:

"Dig a circular ditch around the tree, about one foot wide and two feet deep. The ditch should be somewhere about as many feet from the tree, as the latter is inches in diameter. For rather large trees the distance should be less in proportion; but the judgement of a skillful operator will be a sufficiently safe guide in all cases. In digging the ditch, the roots should all be cut off and pared smoothly with the inner side of the ditch, and the outer fragments of the roots should be removed as cleanly from the surrounding ground as may be convenient. This done, fill the ditch with generous rich soil, with which a mixture in proportion of one pound of potash and two bushels of swamp peat or muck, has been well intermingled. Head in the top of the tree

*In the grounds of Col. M. P. Wilder, of Dorchester, near Boston, is a dwarf Pear tree of the *Dutchess de'Angouleme* variety, that bears annually, about a barrel of magnificent fruit.

judiciously, cutting off from one-fourth to three-fourths of the growth of the last year's scions. Root pruned dwarfs will need this treatment as often as once in three years, and frequently, under high cultivation, they will require it once in two years, or even annually."

The season for this, is any time between the first of November and the middle of April, excepting when the ground is wet, freezing, or frozen. This practice we would recommend as being worthy of experiment and careful observation by those who take an interest in the culture of good fruit.

By working the Pear on the common White Thorn, and commencing early with the *root pruning* process above described, it may be kept at a very diminutive size; and when in full bearing it is quite a curiosity. On either the Thorn or Mountain Ash, however, the Pear is not a long lived tree.

In all cases of dwarfing, the point of grafting should be about an inch below the surface of the ground. This is very important, particularly with the Quince stock, which should in all cases be *entirely covered* with earth; without which no dwarf can be expected to succeed well.

Dwarf Pear trees require a good degree of attention and *high culture.* A Dwarf carelessly set, and left to take care of itself, will *never succeed well;* but with good and careful culture, with some experience and judgement on the part of the cultivator, it is almost certain to succeed.

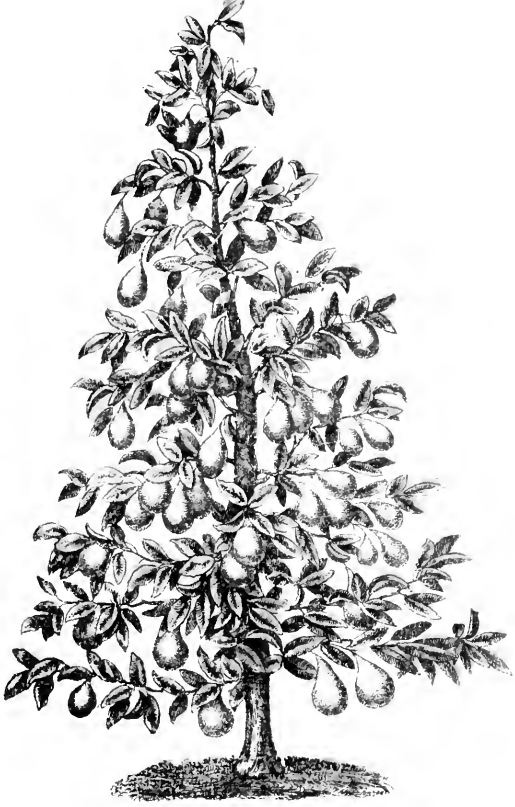
Some prejudice has arisen in regard to dwarf Pears, on the part of those who have attempted their culture, and who have failed of success in the attempt. It has also been said that the Pear on the Quince stock is a tree of short duration. These objections are, in a great measure, the

result of attempting to produce too many varieties of the dwarf habit. A selection from the varieties *best* adapted to the Quince stock, should be the object of the pomologist, rather than an extensive variety of kinds. The French or *Angers* Quince stock should only be used for this purpose. Graft on this the Dutchess d'Angouleme, Louise Bonne de Jersey, Vicar of Winkfield, Glout Morceau, Beurre Diel, Beurre d'Aremberg, White Doyenne, and others of the same class; give them a good soil, high culture, and as good attention as is given to ordinary field crops, and there will scarcely be any reason for complaint of a failure.

"The Dwarf," says a writer in the *Country Gentleman*, "is emphatically the tree of the garden, where two hundred may be planted on a quarter of an acre, and where no difficulty exists in giving them the best soil and treatment."

For private gardens and grounds where early returns are desirable, one may begin to realize the delicious product of his own soil in two or three years from the commencement of his operations, and in variety, to any reasonable extent desired; while in the meantime he need not neglect the culture of standards that come more tardily into bearing.

On the following page is given a very good representation of a well trained pyramid Pear tree, and the common dwarf, both on the Quince stock. The former trained by the method described, of shortning back the leader, and severe side cutting and pinching; and the latter trained by simple pruning, without any particular regard to form. The superiority of the pyramidal form over the dwarf, both in productivness and beauty, is at once apparent to the most common observer.



Pyramid Pear Tree

Dwarf Pear Tree

PRUNING.

This is a very important department in Pomological science, and one that has scarcely received, in this country, that attention which it demands. The purposes for which pruning is designed, are very important, and the advantages derived from a careful attention to this subject is apparent to every fruit grower.

STANDARDS.—The first object in pruning is to improve the form and promote the growth of the tree. For standards, as a general rule, the first object should be to secure the desired height of the stem or trunk. For orchard culture, that of six feet is, perhaps, the most desirable. Supposing the shoot to have but one year's growth from the bud or graft, and to be very strong and vigorous, nothing will be required until it attains a sufficient length to head back to the required heighth. If the leading shoot is feeble, and a greater strength of stock is desirable, it should be cut back nearly to its base, the result of which will be a stronger shoot, which should be trained as a leader, and this again headed back, until the stock shall have attained a sufficient thickness and height for the formation of the

lateral branches. The entire length of the leading shoot will now be about eight or nine feet. Then if the desired height of the trunk is six feet, cut back the leader to within three or four buds of that height, which should be left to throw out the side shoots required for the future branches. Should laterals form themselves from the upright shoots of the same season's growth, they may be pinched back or partialy checked during the season, in order to promote the growth of the leader.

The primary branches being now formed, the graft will have assumed the form and appearance, in some degree, of the future tree. If the graft or shoot has been cut back freely two or three times, the trunk will have acquired strength and thickness, with a corresponding increase of healthy, fibrous roots, insuring vigor and thriftiness to the young tree, and establishing a proper equilibrium between the roots and branches, which will be of very great benefit to its future growth.

After the branches forming the head of the tree are well developed, if they are uniform in strength and vigor, they will require but little care afterwards, unless their habit should be irregular or drooping, in which case it will be proper to head them back, leaving about six inches of the previous year's growth. These, if the tree is in a thrifty state, will generally throw out new shoots, and form a head symmetrical in shape, and vigorous in its growth.

As the heads from year to year become enlarged, but little care is necessary, any more than to cut out the superfluous wood and remove the redundant shoots, never suffering interfering or cross branches to remain to disfigure the tree, or obstruct the free circulation of air during its growth.

HEADING DOWN.—Old standard trees that have ceased to produce fruit, or are beginning to decay, may often be renovated by this process. Mr. Forsyth, in his "Treatise on the Culture and Management of Fruit Trees," recommends the practice in high terms, from his own experience. He headed down several old standard Pears that were nearly destroyed by the canker, and the following year they were so loaded with fruit that he was obliged to prop the branches. The fourth year after these trees were headed down, he gathered from *one* of them, two thousand eight hundred and forty Pears,—having far exceeded in fruitfulness his younger and more promising trees.

This is a simple operation—merely cutting back the head as far as the place where the new shoots or branches are desired, thus causing the sap of the tree to flow with greater force into the remaining buds, forming new and vigorous shoots, which soon creates a more energetic and healthy action of the nourishing fluids in the tree, and induces luxuriance and fruitfulness.

All *heavy* pruning should be done in the autumn, after the fall of the leaf, or during the pleasant days in winter; *moderate* pruning, during the months of July, August and September, and *light* pruning, only requiring the removal of small or dead branches, at any season most convenient to the cultivator.

PYRAMIDS OR DWARFS.—The Pear on the Quince stock, should, as near as possible, be pruned to a pyramidal or conical form. Thus cultivated, all the branches of the tree, from the surface of the ground to the top, will retain their vigor and fruitfulness, equally benefited by the atmosphere, rains and sun, and under proper cultivation, produce

abundant crops of fine fruit. It is a favorite and excellent method of cultivation, and one that should be generally adopted.

Mr. Thomas Rivers, one of the most successful pyramidal Pear tree growers in England, gives the following excellent instructions in pruning trees in this form. "If the cultivator wishes to obtain pyramid trees fine and regular in form, he should first select plants that are but one year old from the graft or bud. These will be well supplied with good buds down to the junction of the graft with the stock."

"The first spring, a tree of this description should be headed down so as to leave the shoot about eighteen inches long; if the soil is rich, from five to six and seven shoots will be produced; one of these must be made the leader, and if not inclined to be quite perpendicular, this must be fastened to a stake. As soon in summer as the leading shoot is ten inches long, its end must be pinched off, and if it pushes forth two or more shoots, pinch all off but one to about two inches, leaving the topmost for a leader; the side shoots will in most cases assume a regular shape; if not, they may be this first season tied to slight stakes, to make them grow in the proper direction. This is best done by bringing down and fastening the end of each shoot, to a slight stake, so that an open pyramid may be formed; for if it is too close and cypress-like, enough air is not admitted to the fruit. They may remain unpruned till the end of August, when each shoot must be shortened to within eight buds of the stem. By this method no pruning in winter will be required."

"The second season the trees will make vigorous growth. The side shoots which were topped last August will each put forth three, four or more shoots; as soon as these are

four inches long, they must be pinched off to within three inches, *all but the leading shoot on each side branch.* This must be kept on, to exhaust the tree of its superabundant sap, till the end of August. The perpendicular leader must be topped once or twice; in short, as soon as it has grown ten inches, pinch off its top, and if it breaks into two or three shoots, pinch them all but the leader, as directed for the first season. In a few years most symmetrical trees may be thus formed."

In regard to pyramidal trees on their own, or Pear roots, the late Mr. Downing gives the following process of Monsieur Cappe's method of pruning, in the *Jardin des Plantes*, France, whose specimens are regarded as the most perfect of the kind in the world.

"M. Cappe confines his pruning to three seasons of the year. In the month of March, or before the buds start, he shortens back with the knife all the leading shoots,—that is, the terminal shoots at the end of each side branch. Of course, this forces out not only a new leading shoot at the end of the branch, but side shoots at various places on the lower part of the shoot. These side shoots are left to grow till the *end of May.* They have then pushed out to about four or five inches in length. The ends of all these side shoots are then *pinched off*, leaving only about an inch and a half at the bottom of the shoot."

"The terminal or leading shoot is left entire, in order to draw up the sap, which would otherwise force all the side shoots into new growth. Notwithstanding this precaution, in luxuriant seasons the side shoots will frequently push out new shoots again just below where they were pinched. This being the case, about *the last* of August, M. Cappe

shortens back these new side shoots to about an inch and a half. But this time he does not pinch them off. He *breaks* them, and leaves the broken end for several days attached and hanging down, so that the flow of sap is not so suddenly checked as when the branch is pinched or cut off, and the danger of new shoots being forced out a third time is thereby effectually guarded against."

"The object of this stopping the side branches, is to accumulate the sap, or more properly, the organizable matter in these shortened branches, by which means the remaining buds become fruit buds, instead of wood buds, They also become spurs, distributed over the whole tree, which bear regularly year after year, sending out new side shoots, which are pinched back in the same manner every summer."

"In order to keep the tree finely proportioned, the eye of the pruner must be a nice one, that he may, with a glance, regulate the pruning of the terminal branches or leaders, which, as we have just said, are shortened back in March, for then is the time to adjust any extravagances of growth which the tree may have run into, on either side; and in the summer pinching the balance of growth is adjusted by pinching the side shoots that start out nearest the ends of the branches, quite short, say an inch and a half, while those that start near the bottom of the branch, (or the centre of the tree,) where they have less nourishment, are left from four to five inches long."

"Understanding this mode of pruning, nothing is easier than to form pyramidal Pear trees of the most perfect symmetry, and beauty of form. But in order to have the branches regularly produced from the ground to the summit, you must plant a tree which is only a couple of feet high, so that you can form the first tier of branches quite

near the ground, by cutting back the leader at the very outset; for if the tree is once allowed to form a clean body or stem, of course it is impossible afterwards to give it the requisite shape and fullness of branches at the bottom."

"A somewhat different but equally severe pruning is necessary for the Dwarf Pear," Mr. Jaques very judiciously remarks, "when trained on a wall or espalier rail. In all pruning, a skillful operator will modify the mode to suit the particular case in hand. Whatever may be the shape given to the tree, *all Dwarf Pears* (Quince bottomed or root pruned,) *require an annual* heading-in, in some form or other, and those upon Pear roots, an occasional, if not annual root pruning also."

Root Pruning.—The process of root pruning has been described in the chapter on dwarfing. By retarding the growth of the tree, and thereby causing an accumulation of the sap, necessary to the formation of fruit-buds on the branches, fruitfulness is promoted in some cases, to a degree far beyond the expectations of the cultivator.

When an old or partially decayed tree is headed back to induce health and fruitfulness, the system of root pruning should, as a general rule, be combined, and it will scarcely ever fail of renovating its health, and establishing in a good degree its former vigor.

Pruning Implements.—The instruments necessary for pruning, for dwarf and small standard trees, are simply a strong, broad, fine edged, smooth cutting knife, slightly hooked near the point, and a very fine and light saw, for removing the larger branches. For standard trees of larger growth, a coarser and heavier saw, a pruning chisel, and in some instances the cutting shears will be necessary. It is

very important that every cut should be evenly made, and the exposed surface left perfectly smooth.

PREPARATION FOR COVERING THE WOOD.—A wash consisting of gum shellac dissolved in alcohol, to the consistency of thin syrup, is very useful in preserving the cut from the effects of the weather, and preventing the escape of the moisture of the tree through the wound.

TRAINING.

This is one of the leading features of garden fruit culture in England, and much skill and ingenuity is exercised in this department; while in this country, it is but very little practiced, and can scarcely be required to any considerable extent in our climate. For city gardens, and as an ornamental method of culture in the gardens of the wealthy, it may be desirable; but the *economical* fruit culturist will find his time and skill more profitably appropriated than by training the Pear after the English method. For some varieties, however, in the northern parts of New England, and as a pleasing mode of culture, it is, by the amateur, worthy of attention.

ESPALIER TRAINING.—This method of training is well adapted to all localities where but little room can be spared for the larger fruits, or when from the delicacy or tenderness of the variety desired to be grown, the protection of a wall is necessary to insure fruitfulness and early ripening.

The best method for wall training, is to select a vigorous young tree, of one years growth from the bud. These, in all cases, should be grafted or budded on the Quince stock.

Cut off the main stem, leaving a few healthy buds on each side. These will throw out shoots, which should be all removed but three. One being the middle or leading shoot, to be trained perpendicularly, and the others as diverging branches, to be extended on each side. The next season, cut these back in the same manner, permitting each to throw out side shoots to form future branches, and continue the operation yearly, until you have obtained the size and form of the tree desired. The English gardeners train their espaliers perfectly flat, which is always desirable on the wall or trellis. This method of training admits of various modifications, according to the convenience or fancy of the cultivator, who may exercise his skill in producing a variety of forms, beautiful to the eye, or adapted to the locality.

When *espaliers* are designed for borders running through a garden, the borders should be six or seven feet wide,—the ground well prepared and properly manured, and a row of posts firmly set in a perfect line in the middle of each border. These posts may be cut even to about seven feet in height, on which may be nailed horizontal slats or laths, about twelve inches from each other from one foot from the bottom, upwards to the top of the posts, forming a trellis, to which the branches may be spread out and tied, in the *horizontal*, or *fan*, or almost any other form desired.

Quenouille Training.—Training in the *quenouille* or *distaff* form is practiced both by the English and French gardeners, particularly the latter, to a considerable extent. It consists in training the tree with a single stem, to the height of six or seven feet, and allowing shoots to form branches at regular distances from the bottom to the top. The superabundant side branches are thinned out, leaving those that are the most vigorous, and which should be about

ten or twelve inches distant from each other, and as regularly arranged on the stem as possible. These are suffered to grow about eighteen inches to two feet in length, being bent down in a pendent or drooping form, and fastened by a string during its growing season in the summer. The luxuriant growth of these branches is very much retarded by this method of training, and consequently they are more generally supplied with healthy fruit buds and bearing spurs, which produce abundantly, fruit of fine size and the best quality.

It is a very compact and beautiful method of culture, occupying but little space, and forming a most beautiful tree. For those who have the leisure to adopt it to some extent, I can cordially recommend it.

SOIL AND CULTURE.

The best soil for the Pear is a deep, rich loam, rather moist, and underlaid with a firm, gravelly sub-soil. Any soil capable of producing a fine crop of Indian corn, is adapted to the production of the Pear. Cole remarks:

"The Pear requires a deep friable loam, rather moist, but neither wet nor dry, with a rather dry sub-soil, as its roots run deep; yet a porous sub-soil is not good; a hard pan is preferable. A deep yellow loam is excellent. The largest natural trees are on strong, moist soils. The original Harvard tree is on a very hard, clayey soil, but elevated on a ridge. Our large tree is on a strong, moist yellow loam, inclining to marl, and around it we raise our best seedlings. As iron is beneficial to the Pear, a ferruginous soil is favorable. We find it very vigorous on such soils. Different varieties require different soils, but the peculiar nature of each kind is not well ascertained."

A soil in which lime and the phosphates predominate, is best adapted to the Pear. Should the sub-soil be composed of cold clay, it should be deeply and thoroughly sub-soiled, and well drained. The Pear on Quince roots requires a deeper and moister soil than the Pear on its own roots;

although with high cultivation and careful management it can be made productive on any of the common soils of New England, or the Southern States. A dry sub-soil overlaid with a deep, friable, strong loam, with the surface a little declining to the south or the east is to be prefered, but these are not absolutely necessary to insure success. As a general rule, when a portion of the grounds are rather wet, with a clayey sub-soil, and a portion of a gravelly texture, set your standards on the Pear roots on the latter, and those on the Quince, on the former, as being more congenial to the nature of the stocks on which they are budded.

That we may better understand the nature of the soil required for the growth of the Pear, we append the following table, giving an analysis of the ash of the wood and bark of the tree, as made by Dr. Emmons.

	Sap wood.	Heart wood.	Bark of the trunk.
Potash,	22.25	26.94	6.20
Soda,	1.84		
Chlorine,	0.31	0.21	1.70
Sulphuric acid,	0.50	0.45	1.80
Phosphate of lime,	27.22	20.40	6.50
Phosphate of peroxide iron,	0.31	0.80	
Carbonic acid,	27.69	25.48	37.29
Lime,	12.64	13.14	30.36
Magnesia,	3.00	2.93	9.40
Silex,	0.30	0.30	0.40
Coal,	0.17	1.00	0.65
Organic matter,	4.02	5.00	4.20
	100.25	96.65	98.50

Taking the foregoing table as our basis, we may ascertain very nearly the proper qualities of the soil, and those best adapted to the growth and vigor of the Pear tree. This, however, will be more fully discussed in the following chapter on *manures*.

MANURES.

To any careful observer, the fact is self evident, that while the value and importance of special manures, in their application to the soil designed for field crops, &c., has occupied the minds of experienced agriculturists, there has been a very great want of attention to this subject, by some of our fruit culturists. In no other department of agricultural or horticultural science, probably, has there been more thoughtlessness or greater neglect.

"A little observation," remarked the late Mr. Downing, "will satisfy any careful inquirer, that but little is yet practically known of the proper mode of *manuring orchards*, and rendering them uniformly productive. To say that in almost every neighborhood, orchards will be found which bear large crops of fine fruit, while others not half a mile off, produce only small crops; that in one part of the country, a given kind of fruit is always large and fair, and in another it is always spotted and defective; that barn-yard manure seems to produce but little effect in remedying these evils; that orchards often nearly cease bearing while yet the trees are in full maturity, and by no means in a worn out or dying condition. To say all this, is only to

repeat what every experienced cultivator of orchards is familiar with, but for which few or no practical cultivators have the explanation ready."

Mr. Emmons, whose analysis of the ashes of the Pear wood and bark I have given in the preceeding chapter, and who is very favorably known by his labors in the cause of scientific agriculture, has devoted much time and attention to ascertaining the elements which enter into the composition of the *inorganic parts of trees*, and proves to us in the table given, the fact that one hundred parts of the ashes of the sap wood of the Pear tree, give twenty two parts of *potash*, twenty seven parts of *phosphate of lime*, and twelve parts of *lime;* while the bark gives six parts of potash, six parts of phosphate, and thirty parts of lime.

With these facts before us, we have, to a considerable extent, the means of judging in regard to the kind and nature of the manures or ingredients necessary to supply the tree with its natural and proper elements. All these are, in a measure, contained in animal manures; but when the soil is naturally deficient in lime, potash and the phosphates, these manures alone, cannot supply the requisite demand; hence the cultivator will seek a remedy in applying to the soil the necessary ingredients to supply the deficiency.

The remedy is simple, and easily obtained. Bones abound in the phosphates, and lime and potash are cheap and easily obtained. Even if they were not, common *wood ashes* is a very convenient substitute, containing all the most important ingredients, which are beneficial to the tree.

We may therefore infer that *potash* and *bone dust*, or *crushed bones*, are essentially the most necessary substances to nourish and invigorate the Pear tree, or rather the

"foundation upon which a healthy structure of all the other parts must rest." It appears to be a natural deduction that upon their presence, in sufficient quantity, must depend largely the general healthy condition of the leaves and fruit.

In connection with the foregoing, we have the later experience of some of the most skilful and intelligent practical fruit culturists in this country and in Europe. Although but a small proportion of *iron* is developed from Mr. Emmons' analysis, it has been found practically, that its presence in some form, very essentially affects the health and appearance of the Pear tree. Its effect on the health of the foliage, and the vigor of the stock, together with the often increased fruitfulness of the tree, is frequently apparent to the most common observer.

The direct effects of the application of iron to the soil in which the Pear tree is placed, are developed in a healthy and active circulation of the fluids, caused by the increased rapidity of the decomposition of carbonic acid absorbed by the leaves of the tree. It imparts to the foliage a rich green color, and that vigorous, healthy habit, which insures a full and free exercise of all their functions as the *lungs* of the tree, separating and giving out the oxygen, and at the same time retaining the carbon to increase its bulk.

For this purpose the *sulphate* of iron has, by some, been particularly recommended, but Mr. Downing believed from his own personal experience, that the same effect would be produced by the application of the *oxide* or common *rust* of iron, in small quantities. The sweepings and cinders of blacksmith shops, sparingly used, are a very good substitute, and I have known the fruit of a Seckel Pear very much improved and increased in size, by the simple application of

slag from a neighboring iron furnace, to the roots of the tree. As a general rule, once in a season is often enough to repeat the operation.

As a compost particularly adapted to the Pear tree, L. Wyman, jr., Esq., of West Cambridge, Mass., recommends peat and potash, in the proportion of a waggon load of the former, to twenty pounds of the latter dissolved in water, and well incorporated in the mass; to which he adds one peck of iron filings, or one and a half pecks of crude iron turnings, which are well mixed throughout the whole. A half bushel of this compost, annually, is sufficient for a middle sized bearing tree; but for a young tree just planted, half a peck is all that would be required. The size of the trees to be manured, will, of course, regulate the quantity of compost necessary for each.

The following is a good method of preparing a compost adapted to the Pear, either on its own or the Quince stock. Take peat or *swamp muck*, drawn out in the fall or winter, and thoroughly mix it with unleached wood ashes, in the proportion of five parts in bulk of the former to one of the latter. Let them remain a week or two, then turn over and again mix thoroughly, adding one peck of common fine salt, two bushels of charcoal dust, with a peck of iron filings, or its equivalent in cinders, or iron rust, &c. Incorporate thoroughly, and apply annually, in the proportion of about half a peck to a young tree just planted, to three pecks for a moderately sized bearing tree. As a general application to promote vigor in the tree, and induce fruitfulness, I know of nothing better.

An excellent compost for the Pear tree may be made by the use of straw, leaves, old tan bark, saw-dust, &c. To these add a small quantity of lime and strong wood ashes

and let it remain a fortnight; then turn over and thoroughly mix, adding four quarts of salt, one hundred pounds of bone dust, and one bushel of blacksmith's cinders to the mass: after which, another thorough mixing will sufficiently incorporate the whole, and prepare it for use. The application of from half a peck to three pecks of this manure, according to the size of the tree, will generally be sufficient.

Liquid Manures.—Much benefit is frequently obtained by the use of liquid manures for the Pear tree. I have used a sulution of potash water, (dissolving four pounds of crude potash in thirty gallons of water,) with decidedly good effects. During the spring and summer season, particularly if dry weather should prevail, a pail-full around each tree *well mulched*, as often as twice a week, is beneficial.

Soap-suds, frequently applied, is also advantageous to the Pear tree; also, sink and chamber slops, are valuable manures. The latter should, however, be applied with more caution, and not be used so frequently or too strong. Guano water, properly diluted, is also an excellent application, inducing a vigorous growth and fruitful habit in the tree.

Mulching.—This, although not particularly coming under the head of manures, is very nearly allied to it. Young trees, when first planted, are very essentially benefitted by the mulching process, and there are none, even in a full bearing state, that will not amply repay the cultivator for all the time and trouble expended in the operation. Any loose rubbish, litter, straw, saw-dust, old tan-bark, fine shavings, or sea-weed, will answer very well for the purpose. It should be spread some three or four feet around the tree according to its size, to the depth of

four to six inches, according to the material used. (Sea-weed, shavings or straw requiring to be more plentifully applied than saw-dust or tan.) This keeps the soil moist and light, and of an equal temperature, very favorable to the growth of the young roots. Indeed, watering the surface when the trees are not mulched, is generally a useless waste of labor. One pailful of water, or liquid manure, applied to a *mulched* tree, would exceed in value four times the same quantity, applied to a tree without mulching.

DISEASES AND REMEDIES.

The Pear tree, although naturally hardy and productive, is nevertheless, subject to diseases, injury from insects, &c., which often seriously annoy the cultivator, and sometimes essentially affect his operations. Perhaps the most common and destructive disease to which the fruit grower is subject in Pear cultivation, is generally called

THE WINTER, OR FROZEN SAP BLIGHT.—This term is applied to one of the most formidable diseases which affect the Pear tree, particularly if grown on low and moist soils. This may be first discovered in the spring, in various discolored spots and apparently half withered patches, on the principal branches. Notwithstanding these, the tree comes forward, often luxuriantly putting out buds and blossoms, and sometimes vigorous shoots, until about the first to the middle, or latter part of June, either a branch, or the entire tree, suddenly, or more gradually dies. A careful examination of the tree will show a discoloration of that portion of the bark *next to the wood*, which will be found of a dark cinnamon color, extending frequently a considerable distance below the withered, or externally marked portion of the tree. In regard to the cause of this disease, our best Pomologists differ in opinion. Dow-

ning, H. W. Beecher, and others, who are good authority, attribute it to the effect of severe sudden frost, and as sudden thawing, rupturing the tender sap vessels, which become, either in a greater or less degree, filled with putrid, decomposed vegetable matter. This, taken up by the ascending current of sap, disseminates the poison, either through the branches above the diseased portion, or throughout the entire system of the tree.

Dr. Emmons thinks, however, that no satisfactory reasons can be given in support of this theory, and argues against its adoption. He attributes it to other unknown or uncertain causes, and regards it as a "*vegetable gangrene*," that infects the trunk and branches of the tree, extending generally throughout the same, until it completely destroys all traces of life, leaving it a withered and blackened shrub.

Whatever may be the cause of the disease, the *remedy*, and the only one hitherto discovered is, as soon as the disease makes its appearance, to *cut off promptly, boldly and effectually, every portion of the tree below the discolored line of the inner bark*. Such a severe pruning is the only remedy that is reliable.

The Insect Blight.—This is a disease not generally as fatal or destructive as the former. The cause is probably correctly attributed by Professor Peck and Dr. Harris, to the *Scolytus pyri*, a minute insect, less than one tenth of an inch in length. The first indications of the ravages of this insect are the sudden withering and turning brown of the extremities of the vigorous branches of the tree. In two or three days the foliage becomes entirely black and dry, and the wood as shrivelled and dry as from six months' exposure. Indeed, the tree, if a small one, will sometimes appear as if suddenly blasted by lightning. I have seen, in my own

grounds, a dwarf tree apparently in full vigor, in the month of July, well laden with young fruit, in forty-eight hours become blasted and dried up, both wood and foliage, as if literally scorched in the fire. This, however, is rare in an entire tree, but is more generally confined to a portion of its branches.

Mr. Downing says,—the insect deposits its egg during the summer, near a bud. The following spring, the larva or gnat at the root of the bud cuts through the wood towards the centre of the branch or stem. There it encircles the pith, and nearly destroys a portion of the vessels conveying the sap upwards for the support of the leaves. This obstructs the ascending fluids, cuts off the needful supply, and the vitality of the branch above the injury is entirely extinguished. The larva meanwhile completes his transformation, and in the beetle form makes his escape.

The *remedy*, as in the former instance, is very plain. *Cut off and burn every portion of the diseased branches below the point of incision, the earliest possible moment after discovery.* By this means alone the tree will be renovated, and the mischief remedied.

The Slug Fly.—This insect, described by Prof. Harris, under the name of *Selandria Cerasi*, is often quite annoying to the orchardist; depositing its eggs in the month of June, within little circular incisions made through the skin of the leaf, generally on its under side. In about two weeks the young slugs make their appearance. They attain their growth in about twenty-five days and leave the tree, burrowing in the ground, where their transformation is effected, and they are prepared to emerge from the earth for the production of another brood. The *Slug worm* is frequently very injurious to the foliage of the Pear, which

it sometimes entirely destroys. It is about half an inch in length when full grown, olive colored, slimy and offensive in its appearance, resembling somewhat in shape, "a miniature tadpole."

The *remedy* for this is simple. A solution of *Whale Oil Soap*, in the proportion of one pound dissolved in eight gallons of water, and thoroughly applied to the trees with a syringe, is generally effectual in ridding them of this enemy. When this soap cannot easily be obtained, an application of air slacked lime, or strong wood ashes plentifully sprinkled over the leaves in the morning, when moist with dew, will have a very good effect, if repeated a few times, in ridding them of this troublesome innovator.

THE LEAF BLIGHT.—This is simply a disease of the leaves, probably arising from a want of some of the necessary ingredients in the soil for the healthy organization of the tree. The leaves, during the months of July and August, turn yellow, with occasional brown and black patches, and sometimes fall off, leaving the tree entirely denuded of its foliage.

A *remedy* for this will generally be found in the application of iron rust, peat and bone dust, well mixed, and applied to the roots of the tree. Peat or muck, that has been exposed to the frosts of one winter, to which has been added a half pound of dissolved potash to the bushel, and suffered to lie a few days, may also be applied, (a bushel to a tree,) with great success.

A weak solution of *Sulphate of iron*, applied with a syringe to the branches and leaves of the tree, is also frequently advantageous.

GATHERING, PRESERVING AND RIPENING.

This is a very important branch of our subject, and one upon which the full advantage and ultimate success of Pear culture very much depends. After every point in the successful propogation of the most rare and choice varieties has been gained in the production, more than half is lost in not succeeding in the very important, and perhaps least understood process of *ripening the fruit.*

In Europe the art of properly ripening fruit is considered a very important science in itself, while in this country but few, comparatively, are fully acquainted with its details. Mr. Jaques very truly remarks,—"*Many Pears, early and late, are lost to their cultivators, from an ignorance of the proper modes of ripening them.*" He might with much propriety also have added, a prevailing ignorance or carelessness in regard to the time and manner of gathering the fruit. This, therefore, will be the first subject of remark.

GATHERING THE FRUIT.—Attention to the proper season for this is very important. Many of the summer and autumn varieties are essentially deteriorated, and some ren-

dered absolutely valueless, from a want of care on this point. No variety of the Pear should be permitted to become fully ripe on the tree, as by so doing it becomes, in a certain degree, tasteless and insipid. As a general rule, when the *first* full grown specimens *begin* to show signs of ripening, the fruit should be gathered at once.

Before the fruit becomes dead ripe, choose the middle portion of a dry day, gather carefully by hand, and remove it to your fruit room, or some cool, dry apartment prepared for the purpose. The room should be well ventilated and darkened, and the fruit will gradually ripen to its full perfection of beauty and fine flavor. Should there be any difficulty in determining the time when the fruit is sufficiently ripe, it may be ascertained by gently raising the fruit to an angle of forty-five degrees from its natural position on the tree, and if its stalk parts readily from the branch, it is fit for gathering.

"Winter dessert Pears," says Mr. Downing, "should be allowed to hang on the trees as long as possible, until the nights become frosty. They should then be wrapped separately in paper, packed in kegs, barrels, or small boxes, and placed in a cool dry room, free from frost. Some varieties, as the D'Aremberg, will ripen finely with no other care than placing them in barrels in the cellar, like apples. But most kinds of the finer winter desert Pears, should be brought into a warm apartment for a couple of weeks before their usual season of maturity. They should be kept covered to prevent shrivelling. Many sorts that are comparatively tough if ripened in a cold apartment, become very melting, buttery and juicy, when allowed to mature in a room kept at a temperature of sixty or seventy degrees."

If the fruit is kept too long in the cold room, it will have

a tendency to become dry and tasteless. Neither should it be forced into too early ripening by changing to the warm temperature too soon. A proper judgement and considerable skill is requisite in ripening Pears to perfection. The fruit room should be rather dry, but not sufficiently so to shrivel the fruit. By proper care and management in this department, good dessert fruit may be ripened successively during the entire winter.

FRUIT ROOM.—An idea has prevailed to some extent, that an expensively constructed fruit room is necessary to ripen Pears in full perfection. This is, in my own opinion, (corroborated by that of others,) entirely unnecessary. A cool, dry, well ventilated cellar or vault, is all that is required. It is desirable to have the temperature as even as possible, and but little light is requisite. After gathering the fruit with the greatest possible care, provide yourself with convenient air-tight boxes, that will contain perhaps half a barrel. These should be hung with hinge covers for convenience. A little clean, *dry* straw should be laid on the bottom of each, and then the fruit placed in very carefully. None but perfectly sound specimens will, of course, be used. After standing a few days, they should be taken out and wiped dry from their "sweat," wrapped separately in papers, and again replaced in the boxes. Pears treated in this way, preserve their freshness and flavor better than if spread on shelves, or put in open bins in the fruit room. Those varieties that do not ripen readily may be removed some ten days before their season for maturing, and placed in a dark closet or room of moderate temperature, say sixty or sixty-five degrees, Farenheit. This is a simple method of ripening fruit, and in my own experience, as efficacious as any other.

If the cultivator, however, prefers to construct a fruit house, he should select a dry, gravelly place, and excavate it to a convenient depth, and of the size desired. It is very easily constructed. A double wall, with a few inches space between, which may be filled with charcoal, tan bark, or straw, will be advantageous in preserving a more equal temperature. The bins or shelves should be so constructed as to allow room to pass between them and the outer wall. In such a room as this, or in the cellar above named, many kinds of Pears will require nothing more than to be kept in tight boxes or barrels, to preserve them. Other varieties may be kept on the shelves. As a general rule, however, the fruit, *papered separately,* and put in small boxes or kegs, and kept closely headed, will retain more of its freshness and flavor, than by any other method.

VARIETIES.

The present number of the varieties of the Pear is very large and constantly increasing. Mr. Elliot estimates the number now known at something over twelve hundred. But if we credit the statement of Dr. Wallich, made nearly fifty years since, there were then not less than fifteen hundred varieties known to have been obtained by cultivation. Since that time, probably more than one thousand have been originated by Dr. Van Mons, Knight, Duquesne, and others, in Europe, and many varieties have been added in this country;—hence we infer that the number now cannot be less than *twenty-five hundred.* Of these, however, a very large proportion have never been cultivated to any extent, and probably if the entire list was cut down to one hundred kinds, it would be abundantly sufficient for all practical purposes. Indeed, if this number was reduced *one half*, the fifty kinds remaining would still be sufficiently large for profitable culture. F. L. Allen, Esq., of Buffalo, N. Y., who is eminently a *practical* man in such matters, after a fair trial, says:—"I have resolved to cut down my seventy or eighty varieties," naming sixteen as being of the first quality

and more valuable to cultivate than a larger variety. These sixteen sorts ripen in succession, from July to February, are of the finest and most valuable varieties, and, adds Mr. A., "are enough in all conscience to satisfy any appetite, however fastidious."

At the twentieth annual exhibition of the Mass. Hort. Society, there were *two hundred and sixty* sorts on exhibition, from the Pomological Garden at Salem, in that State; but the excellence, or superiority of a large majority of them is not mentioned. To cultivate and increase new and rare varieties is a pleasant and laudable engagement, but the plain, practical Pear culturist will generally find his own interest promoted, and his profits enhanced, by confining his attention to the *best* and *most productive* varieties. The most common error, especially with beginners, is, to attempt to grow *too many sorts*. With the experience of the best Pomologists in this country and Europe, and the annexed lists of varieties, which, with good cultivation have usually succeeded, no person need fail in selecting the best and most reliable varieties now cultivated.

Lists of Pears for General Cultivation.—The first and largest list of Pears for general use, I have taken from the tables of Mr. Cole, whose "American Fruit Book" is so well known throughout New England, as an excellent and reliable guide to the fruit culturist. It comprises 79 varieties, which are given in the order of their ripening, as follows:

Summer.—Madeleine, Jargonelle, Zoar Seedling, Osband's Summer, Bloodgood, Muskingum, Moyamensing, Julienne, Belle of Brussels, Dorr, Rostiezer, Wadleigh, Summer Frank Real, Tyson, Dearborn's Seedling, Osborn.—16.

Autumn.—St. Ghislain, Bartlett, Wilbur, Pratt, Golden Beurre of Bilboa, Knight's Seedling, Stevens' Genesee, Washington, Belle Lucrative, Gansel's Bergamot, Frederic de Wurtemberg, Harvard, Long Green, Cushing, Flemish Beauty, Paradise d'Automne, Eyewood, Adams, Andrews, Beurre Bosc, Seckel, Louise Bonne de Jersey, Heathcot, Trescott, Abbott, Brown Beurre, Jalousie, Surpass Virgalieu, Beurre Van Marum, Buffum, Fulton, Marie Louise, White Doyenne, Swan's Orange, Beurre d' Anjou, Urbaniste, Napoleon, Van Mons' Leon le Clerc, Bishop's Thumb, Queen of the Low Countries, Grey Doyenne, Bleeker's Meadow, Dix, Vicar of Winkfield, Duchess d' Angouleme, Oswego Beurre, Beurre Diel.—47.

Winter.—M'Laughlin, Lewis, St. Germain, Cross, Columbia, Prince's St. Germain, Beurre d'Aremberg, Chaumontel, Lawrence, Glout Morceau, Winter Nelis, Passe Colmar, Echassery, Knight's Monarch, Easter Beurre, Buerre de Ranz.—16.

Select list of 40 varieties, by Samuel Walker, Esq., of Roxbury, Mass.

American.—Bloodgood, Dearbon's Seedling, Pratt, Tyson, Knight's Seedling, Seckel, Cushing, Heathcot, Andrews, Buffom, Dix, Lawrence and Columbia.—13.

European.—Citron des Carmes, (Madeleine,) Passans du Portugal, Williams' Bon Chretien, (Bartlett,) Flemish Beauty, Rostiezer, Fondante d' Automne, Bezi de la Motte, Doyenne White, Louise Bonne de Jersey, Doyenne Grey, Beurre Diel, Dutchess d'Angouleme and Glout Morceau, 13.

Additional.—Beurre d'Aremberg, Beurre d'Anjou, Beurre

Bosc, Eyewood, Henry IV, Van Mons' Leon le Clerc, Marie Louise, Winter Nelis, Paradise d'Automne, Passe Colmar, St. Ghislain, Vicar of Winkfield, Urbaniste and Echassery. 14.

The following 35 varieties are recommended by Mr. Kirtland:

Summer.—Madeleine, Dearbon's Seedling, Bartlett, Summer Franc Real, Belle de Brussels, Musk Robart, Windsor, Summer Beauty, Zoar's Seedling.—9.

Autumn.—Louise Bonne de Jersey, Beurre Bosc, Ananas d' Ete, Kirtland's Beurre, Marie Louise, Rousselet of Rheims, Honey, Seckel, Stevens' Genesee, Gansel's Bergamot, Heathcot, Beurre Diel, White Doyenne, Gray Doyenne, Dix, Frederic de Wurtemberg, Bezi de La Motte, Coit's Beurre, Duchess d'Angouleme.—19.

Winter.—Winter Nelis, Beurre de Aremberg, Lewis, Beurre de Ranz, Easter Beurre, Chaumontel, Uvedale's St. Germain.—9.

The report of the Committee from Maine, before the American Pomological Society, at their annual meeting held in Boston, in September, 1854, recommend the following 34 varieties, which have there "been cultivated with great success."

Bartlett, Beurre d'Aremberg, Beurre d'Amanlis, Beurre d'Anjou, Beurre Bosc, Beurre Clairgeau, Beurre Giffard, Beurre St. Nicolas, Beurre Superfin, Buffum, Dearborn's Seedling, Doyenne d' Ete, Doyenne Boussoch, Duchess d'

Angouleme, Dunmore, Flemish Beauty, Fulton, Glout Morceau, Jalousie de Fontenay Vendee, Lawrence, Louise Bonne de Jersey, Marie Louise, McLaughlin, Napoleon, Passe Colmar, Rostiezer, Seckel, Stevens' Genesee, St. Ghislain, Tyson, Urbaniste, Vicar of Winkfield, White Doyenne and Winter Nelis.

John C. Jenkins, Esq., of Adams County, Missisippi, recommends the following list, embracing 32 varieties:

Summer.—Madelaine or Citron des Carmes on Quince, Doyenne d' Ete, Bloodgood, Beurre Giffard, Rostiezer, Tyson, Passans du Portugal, Summer Franc Real, Julienne, Bartlett.—10.

Autumn.—Beurre Diel, Golden Beurre of Bilboa, Buerre d'Amanlis, Beurre Bosc, Marie Louise, Duchess d'Angouleme, Beurre Goubalt, Leech's Kingsessing, Doyenne White, Doyenne Grey, Dix, Brandywine, Beurre d'Anjou, Louise Bonne de Jersey, Seckel, Fondante d'Automne, or Belle Lucrative, Vicomte de Spoelberg, Flemish Beauty.—18.

Winter.—Winter Nelis, Glout Morceau, Knight's Monarch, Passe Colmar.—4.

Mr. Jaques, of Worcester, Mass., in his "Practical Treatise on the Management of Fruit Trees," gives a descriptive list of the following Pears, in the order of their ripening, comprising 31 varieties:

Summer.—Madeleine, Jargonelle, Bloodgood, Dearborn's Seedling, Bartlett.—5.

Autumn.—Rostiezer, Andrews, Beurre d'Amanlis, Golden

Beurre of Bilboa, Paradise d'Automne, St. Ghislain, Heathcot, Fondante d'Automne, Buffum, Seckel, Flemish Beauty, Henry IV, Fulton, Louise Bonne de Jersey, Urbaniste, Beurre Bosc, Marie Louise, Dix, Coffin's Virgalieu, Beurre Diel.—20.

Winter.—Vicar of Winkfield, Lewis, Columbia, Beurre d' Aremberg, Winter Nelis, Lawrence.—6.

List of 30 varieties by Dr. Valk, of Flushing, L. I.

Summer.—Bartlett, Bloodgood, Jargonelle, Madeleine, and Rostiezer.—5.

Autumn.—Beurre Bosc, Beurre Capiaumont, Beurre de Amanlis, Beurre de Beaumont, Beurre Diel, Gansel's Bergamot, Doyenne Grey, Duchess d' Angouleme, Colmar d' Aremberg, Dunmore, Flemish Beauty, Fondante d'Automne, Frederick de Wurtemberg, Vendee, Louise Bonne de Jersey, Paradise d' Automne, Urbaniste, Van Mons' Leon le Clerc.—18.

Winter.—Beurre d' Aremberg, Beurre Ranz, Columbia, Glout Morceau, Ne Plus Meuris, Passe Colmar and Winter Nelis.—7.

J. K. Eshleman, of Chester, Pa., gives the following as the *best* list of Pears for cultivation, selected from one hundred varieties planted by him, and comprising 28 varieties, viz:

Bloodgood, Beurre Giffard, Tyson, Bartlett, St. Ghislain, Seckel, Dearborn's Seedling, Elizabeth, Washington, Ott, Rostiezer, Hanner's, Henkel, Fondante de Malines, Chancellor, Fulton, Camerling, Urbaniste, Kingsessing, Buffum,

Liberale, Capiaumont Flemish Beauty, Lawrence, Winter Nelis, Bleeker's Meadow, Passe Colmar, and Glout Morceau.

Thomas Hancock, Esq., of Burlington Co., New Jersey, reported to the American Pomological Society, a list of 24 varieties of the Pear, as best suited to that region, as follows:

Bartlett, Beurre d'Anjou, Beurre Bosc, Beurre Easter, Bloodgood, Doyenne d' Ete, Duchess d' Angouleme, Early Catherine, Echassery, Elizabeth, (Manning's,) Fondante d' Automne, Henrietta, Lawrence, Limon, Muscadine, Osband's Summer, Oswego, Rostiezer, Seckel, Stevens' Genesse, St. Ghislain, Trimble, Urbaniste, Washington.

Selection of 24 varieties by Lewis F. Allen, Esq., of Black Rock, New York.

Summer.—Osband's Summer, Madeleine, Bloodgood, Bartlett.

Autumn.—Stevens' Genesee, Onondaga, Louise Bonne de Jersey, Washington, White Doyenne, Grey Doyenne, Duchess d'Angouleme, Beurre Diel, Seckel, Columbia.—10.

Winter.—Glout Morceau and Winter Nelis.—2.

To the above 16 Mr. A. adds, "I would reserve for cultivation" the Beurre Bosc, Brown Beurre, Beurre d'Amanlis, Van Mons' Leon le Clerc, Flemish Beauty, Fondante d' Automne, Jaminette and Urbaniste.—8.

Mr. Barry, of Rochester, N. Y., a distinguished and extensive fruit cultivator, recommends 24 varieties, viz:

Summer.—Madeleine, Osband's Summer, Dearborn's Seedling, Bloodgood, Summer Franc Real, Belle of Brussels, Bartlett.—7.

Autumn.—Seckel, White Doyenne, Grey Doyenne, Beurre Diel, Duchess d'Angouleme, Oswego Beurre, Swan's Orange, Beurre Bosc, Louise Bonne de Jersey, Countess de Lunay, Paquency, Ananas.—12.

Winter.—Chaumontel, Winter Nelis, Beurre d'Aremberg, Glout Morceau, Vicar of Winkfield.—5.

Messrs. J. W. Hays and William Reid, of New Jersey, recommend the following 23 varieties:

Summer.—Amire Johannot, Madeleine.—2.

Autumn.—Bartlett, Belle Lucrative, Andrews, Washington, Beurre Bosc, Seckel, Duchess d' Angouleme, White Doyenne, Grey Doyenne, St. Ghislain, Flemish Beauty, Urbaniste, Louise Bonne de Jersey, Marie Louise, Beurre d'Anjou.—15.

Winter.—Vicar of Winkfield, Beurre Diel, Winter Nelis, Beurre d'Aremberg, Glout Morceau, Easter Beurre.—6.

John B. Eaton, Esq., of Buffalo, presented the following list to the Pomological Convention of fruit growers at Boston, as the best varieties for cultivation in his vicinity. It comprises 22 varieties.

Bartlett, Beurre d'Amanlis, Beurre d'Aremberg, Beurre Diel, Bloodgood, Duchess de Angouleme, Easter Beurre, Flemish Beauty, Glout Morceau, Grey Doyenne, Vicar of Winkfield, Louise Bonne de Jersey, Seckel, Stevens' Genesee, Winter Nelis, White Doyenne, Beurre d' Anjou, Beurre Langelier, Duchess d'Orleans, Lawrence, Rostiezer, Tyson.

The report of Samuel Feast, Esq., of Baltimore County, Maryland, recommends the following as "good and worthy of cultivation," comprising 22 varieties:

Bartlett, Beurre Bosc, Beurre Beaumont, Beurre Giffard, Beurre Quetelet, Bezy d' Esperin, Delices d'Hardenpont, Duchess d' Angouleme, Easter Beurre, Figue d' Alencon, Fondante d'Automne, Ghislain, Glout Morceau, Lawrence, Louise Bonne de Jersey, Rostiezer, Reine de Hiver, Suzette de Bavay, Seckel, Triomphe de Jodoigne, Vicar of Winkfield, Winter Nelis.

The following is Downing's selection of choice Pears, ripening in succession from July to April, and comprising 20 varieties:

Madeleine, Bloodgood, Dearborn's Seedling, Bartlett, Andrews, Summer Franc Real, White Doyenne, Seckel, Fondate d'Automne, Grey Doyenne, Urbaniste, Dunmore, Marie Louise, Van Mons' Leon le Clerc, Beurre Bosc, Dix, Columbian, Winter Nelis, Beurre d'Aremberg and Knight's Monarch.

List of "20 of the finest Pears," by Cheever Newhall, Esq., one of the former Vice Presidents of the Massachusetts Horticultural Society.

Madeleine, Rostiezer, Dearborn's Seedling, Andrews, Dix, Tyson, Heathcot, Bartlett, Golden Beurre of Bilboa, Buffum, Fondante d'Automne, Paradise d'Automne, Seckel, Fulton, Flemish Beauty, Beurre Bosc, Louise Bonne de Jersey, Urbaniste, Glout Morceau, Winter Nelis.

The statement of the committee on fruits from Ohio,

comprising Messrs. Buchanan, Ernst and Warden, of Cincinnati, to the American Pomological Society, in September 1854, together with other sorts, recommend the following 20 varieties:

Bartlett, Beurre d' Aremberg, Beurre Diel, Bloodgood, Dearborn's Seedling, Dix, Doyenne d' Ete, Duchess d'. Angouleme, Easter Beurre, Flemish Beauty, Heathcot, Lawrence, Louise Bonne de Jersey, Madeleine, Marie Louise, Seckel, Stevens' Genesee, Tyson, Washington and White Doyenne.

The report of Messrs. Gabriel, Totten, Terry and Clift, from Connecticut, before the American Pomological Society, in September, 1854, comprising about 50 varieties; but as they remark, they may have erred in regard to some kinds included in their catalogue, I have taken but twenty from their list, as being settled beyond dispute as those adapted to general cultivation. They are as follows:

Summer.—Bloodgood, Dearborn's Seedling, Rostiezer, Tyson.—4.

Autumn.—Bartlett, Beurre Bose, Beurre Diel, Dix, Duchess d'Angouleme, Flemish Beauty, Louise Bonne de Jersey, Marie Louise, Paradise d'Automne, Urbaniste, Van Mons' Leon le Clerc.—11.

Winter.—Beurre d'Aremberg, Easter Beurre, Glout Morceau, Passe Colmar and Winter Nelis.—5.

The following is the list of the Genesee Valley Horticultural Society, embracing 20 varieties.

Summer.—Madeleine, Bloodgood, Dearborn's Seedling, Osband's Summer, Belle of Brussels, Bartlett, Tyson.—7.

Autumn.—Stevens' Genesee, White Doyenne, Onondaga, Seckel, Grey Doyenne, Brown Beurre, Beurre Diel, Duchess d'Angouleme.—8.

Winter.—Beurre d'Aremberg, Prince's St. Germain, Passe Colmar, Winter Nelis, Winter Bell.—5.

List of the "*best* Pears," adopted by the Pomological Congress, at their sitting, Oct. 1851, comprising 19 varieties.

Summer.—Madeleine, Rostiezer, Dearborn's Seedling, Bloodgood, Andrews, Tyson.—6.

Autumn.—Bartlett, Golden Beurre of Bilboa, Buffum, Fondante d' Automne, Seckel, Fulton, Flemish Beauty, Beurre Bosc, Louise Bonne de Jersey, Urbaniste.—10.

Winter.—Winter Nellis, Beurre d' Aremberg, Vicar of Winkfield.—3.

The committe from the State of Michigan reported to the American Pomological Society, in September, 1856, the following 19 varieties, as "*very good*" and "*best.*"

Bartlett, Belle Lucrative, or Fondante d'Automne, Bloodgood, Beurre Diel, Beurre d'Aremberg, Buffum, Dearborn's Seedling, Dix, Doyenne White, Duchess d' Angouleme, Flemish Beauty, Glout Morceau, Louise Bonne de Jersey, Madeleine, Passe Colmar, Seckel, Sterling, Stevens' Genesee, Winter Nelis.

Mr. Edgar Saunders, an experienced fruit grower, residing near Philadelphia, recommends the following 17 varieties:

Summer.—Bartlett, Beurre Giffard, Bloodgood, Madeleine and Rostiezer.—5.

Autumn.—Fondante d'Automne, Beurre d'Anjou, Duchess d'Angouleme, Louise Bonne de Jersey, Seckel, White Doyenne.—6.

Winter.—Beurre d' Aremberg, Easter Beurre, Glout Morceau, Triomphe de Jodigne, Vicar of Winkfield and Winter Nelis.—6.

Selection of 17 kinds by a writer in the "Country Gentleman," published by Luther Tucker, Esq., Albany, N. Y.

Bartlett, Virgalieu, (White Doyenne,) Louise Bonne de Jersey, Buffum, Flemish Beauty, Howell, Beurre d'Anjou, Onondaga, Beurre Clairgeau, Beurre Diel, Beurre d'Aremberg, Glout Morceau, Vicar of Winkfield, Lawrence, Prince's St. Germain, Easter Beurre, and Doyenne de Hiver.

Mr. E. Wight, of Roxbury, Mass., reported in favor of the following 16 varieties:

Rostiezer, Tyson, Brandywine, Beurre d' Anjou, Buffum, Alpha, Howell, Fondante de Noel, Beurre Sterckmans, Beurre Superfin, Theodore Van Mons, St. Michel-Archange, Sterling, Lawrence, Walker, Ananas, or Henry IV.

Mr. T. S. Cornett, Esq., of Indiana, reports to the American Pomological Society the following 13 varieties, as having "given satisfaction," viz:

Madeleine, Bloodgood, Julienne, Dearborn's Seedling, Washington, Bartlett, Seckel, Louise Bonne de Jersey, White Doyenne, Passe Colmar, Beurre Diel, Winter Nelis, Lawrence.

Mr. Edward Tatnall, of Brandywine, Delaware, in his

report to the American Pomological Society, September, 1856, speaks favorably of the following 12 varieties, viz:

Bartlett, Dearborn's Seedling, Tyson, Doyenne d' Ete, Ott, Brandywine, Bloodgood, Madeleine, Beurre Bosc, Lodge, Brown Beurre, Echassery.

List of the best 12 varieties of Pears, recommended by S. L. Goodale, a very intelligent cultivator, of Saco, Maine.

Dearborn's Seedling, Flemish Beauty, Vicar of Winkfield, Fulton, Cushing, Fondante d'Automne, Frederick of Wurtemberg, Dix, Heathcot, McLaughlin, Golden Beurre of Bilboa, Beurre Bosc.

List of the best 12 varieties, recommended by Mr. Elijah Beckwith, of Bangor, Maine, as follows:

Dearborn's Seedling, McLaughlin, Black Worcester, Bartlett, Fondante d'Automne, Winter Nelis, Louise Bonne de Jersey, Vicar of Winkfield, Beurre d'Aremberg, Seckel, Beurre Bosc, Glout Morceau.

Mr. Thompson, of the gardens of the Horticultural Society at Chiswich, England, gave the following as the 5 *best* Autumn, and the 5 *best* Winter Pears:—10 varieties:

Autumn.—Marie Louise, Louise Bonne de Jersey, Thompson, Beurre Bosc, Knight's Monarch.

Winter.—Knight's March Bergamot, Glout Morceau, Beurre Ranz, Ne Plus Meuris, Winter Nelis.

These are all European varieties, and selected from *seven hundred* kinds cultivated by that Society.

The Pomological Convention at Buffalo, October, 1848, unanimously voted that the following 8 varieties are Pears "*of the first quality, and worthy of general cultivation:*"

Dearborn's Seedling, Tyson, Rostiezer, Golden Beurre of Bilboa, Bartlett, Louise Bonne de Jersey, Beurre d' Aremberg, and Glout Morceau.

Thomas Allen, Esq., of St. Louis, Missouri, in his statement as reported to the American Pomological Society, in 1854, recommends the following 8 varieties:

Mitchell's Russet, (a seedling from the Seckel, which it very strongly resembles in every respect, except in size, being larger,) Bartlett, Madeleine, White Doyenne, Duchess d'Angouleme, Napoleon, Beurre Diel, and Urbaniste.

I will add to this somewhat extended catalogue, the list adopted by the American Pomological Society, at its sitting in Rochester, in 1856. After a full and protracted discussion, and a careful examination of the reports of the committees from the various states represented, the Society unanimously recommended the following 42 varieties for *general cultivation:*

Ananas d' Ete, Andrews, Belle Lucrative, or Fondante d'Automne, Beurre d'Anjou, Beurre St. Nicholas, Beurre d' Aremberg, Beurre Diel, Beurre Bosc, Beurre Langelier, Bloodgood, Buffum, Catillac, Dearborn's Seedling, Doyenne d'Ete, Duchess d'Angouleme, Easter Beurre, Flemish Beauty, Figue d'Alencon, Fulton, Glout Morceau Golden Beurre of Bilboa, Lawrence, Long Green of Cox, Louise Bonne de Jersey, Madeleine, Manning's Elizabeth, Napoleon, Nouveau Poiteau, Paradise d' Automne, Rostiezer, Seckel, Sheldon,

Soldat Laboureur, St. Michael-Archange, Triomphe de Jodoigne, Tyson, Urbaniste, Uvedale's St. Germain, (for baking,) Vicar of Winkfield, White Doyenne, William's Bon Chretien, or Bartlett, Winter Nelis.

The above selected lists, *twenty-eight* in number, comprise varieties that have been grown in almost every part of the United States and England, and have the united testimony of the most experienced and distinguished fruit growers in the country in their favor. Committees of distinguished Pomologists from different localities in Maine, New Hampshire, Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, Michigan, Ohio, Indiana, Delaware, Maryland Missouri and Missisippi, fully agree in their superior excellence, and at least five Pomological Associations, including the *American Pomological Society* have recommended them for general cultivation. These lists, therefore, may be consulted, and selections made from them with perfect confidence in their reliability.

With a very few exceptions, viz:—the White Doyenne, Van Mons, Bleeker's Meadow, and perhaps two or three others that fail in some localities, all the varieties named in the above lists are almost certain to succeed well. Still the catalogues are, in many instances, unnecessarily large, and a selection from these even, may be made with advantage. It will be seen that many of the varieties are included in nearly every one of the twenty-eight lists given. The Bartlett, Louise Bonne de Jersey, Seckel, Beurre Bose, Glout Morceau, Duchess d' Angouleme, and others, are of this class. Therefore it is a very simple matter, even for the most inexperienced, to select for himself a list of such as shall be adapted to any locality, and of the finest quality.

For the convenience, however, of such as would prefer a

list ready furnished to their hand, and as a guide to those who are just commencing the culture of this delicious fruit, I will suggest the following catalogue for *general cultivation*, *as standards*, as being sufficiently large, and perfectly reliable. It comprises 26 varieties, viz:

	Varieties.	Time of Ripening.
Summer.—	Madeleine,	Middle to last of July.
	Bloodgood,	Late in July and early in August.
	Beurre Giffard,	First to the middle of August.
	Rostiezer,	August.
	Dearborn's Seedling,	Middle of August to September.
	Tyson,	August and September.
Autumn.—	Bartlett,	Last of August to October.
	Golden Beurre of Bilboa,	September.
	Fondante d'Automne,	Last of September.
	Flemish Beauty,	Last of September.
	Marie Louise,	Last of September and early in Oct.
	Seckel,	September and early in October.
	Howell,	September and early in October.
	Van Assche,	September and early in October.
	Louise Bonne de Jersey,	September and October.
	Beurre Bosc,	September and October.
	Beurre Diel,	September to last of November.
	Duchess d'Orleans,	October.
	Urbaniste,	October and November.
	Dix,	October and November,
	Beurre d'Anjou,	October to December.
	Beurre Clairgeau,	Last of October and November.
Winter.—	Vicar of Winkfield,	November to January,
	Beurre d'Aremberg,	November to February.
	Lawrence,	November to March.
	Winter Nelis,	December to January.

In the above list we have six Summer, sixteen Autumn and four Winter varieties, given in the order and with the usual time of ripening. With two or three exceptions, all these are illustrated and accurately described in alphabetical order in the subsequent pages of the work. I have not designed to include any of the *new* or recently introduced varieties, although many of them are both valuable and productive, prefering to leave these to the choice or the fancy of more experienced cultivators.

DWARF VARIETIES.

Some varieties of the Pear are rendered more productive, and yield larger and more delicious fruit, when grown on the Quince stock. Varieties adapted to this mode of culture, can be thus grown to better advantage, than when on their own roots. The advantages of dwarf culture, are, the small space required for their propagation,—coming almost at once into bearing,—the great productiveness of the trees,—their less liability to injury from high winds, and the comparative ease by which the fruit may be gathered without injury. The following lists embrace varieties best adapted to dwarfing on the Angers Quince. We first give that of Mr. Thomas Rivers, of Sawbridgeworth, England, one of the most distinguished Pear culturists in that country, who, from several hundred varieties cultivated by him,* selects the following 24 sorts for cultivation as dwarfs. It will be observed that they are all European varieties, and are named in the order of their ripening.

*Mr. R. has about twenty-five hundred trees each, of the following valuable varieties alone, now growing in his orchard, viz:—Louise Bonne de Jersey, Bartlett, Vicar of Winkfield, Capiaumont, and two or three other equally reliable sorts.—*Cor. Hort.*

Doyenne d' Ete, Madeleine, Jargonelle, Beurre Giffard, Williams' Bon Chretien, (Bartlett,) Beurre d' Amanlis, Beurre Audusson, White Doyenne, Grey Doyenne, Van Mons' Leon le Clerc, Louise Bonne de Jersey, Glout Morceau, Duchess d'Angouleme, Urbaniste, Beurre Diel, Passe Colmar, Winter Nelis, Beurre Langelier, Beurre d' Aremberg, Vicar of Winkfield, Josephine de Malines, Easter Beurre, Suzette de Bavay, Beurre Ranz.

Mr. Elliot, in the "Fruit Grower's Guide," says, "Of those known to succeed permanently when grown on the Quince, the following 22 varieties may be selected:"

Doyenne d' Ete, English Jargonelle, Madeleine, Long Green of Autumn, Beurre Diel, Glout Morceau, White Doyenne, Grey Doyenne, Striped, Long Green of Autumn, Soldat Laboreur, Van Mons' Leon le Clerc, Summer Franc Real, Bartlett, Beurre d'Amanlis, Louise Bonne de Jersey, Vicar of Winkfield, Duchess d'Angouleme, Easter Beurre, Duchess d' Orleans, Beurre d' Anjou, Doyenne Boussouck, Passe Colmar.

The New York Horticultural Society, at its meeting in September, 1854, adopted the following list, as well adapted for cultivation on the Quince stock, comprising 20 varieties.

Rostiezer, Beurre d'Anjou, Beurre Diel, Duchess d'Angouleme, White Doyenne, Louise Bonne de Jersey, Figue d' Alencon, Urbaniste, Easter Beurre, Glout Morceau, Pound, Cattilac, Vicar of Winkfield, Napoleon, Beurre d' Amanlis, Beurre d' Aremberg, Soldat Laboreur, Beurre Langelier, Long Green of Cox, Nouveau Poiteau, and St. Michael Archange.

Mr. Jaques, of Worcester, Mass., recommends 15 varieties, viz:

Summer Franc Real, Bartlett, Beurre d'Amanlis, Golden Beurre of Bilboa, Flemish Beauty, Paradise d'Automne, Beurre de Capiaumont, St. Michael, Grey Doyenne, Louise Bonne de Jersey, Duchess d'Angouleme, Beurre Diel, Vicar of Winkfield, Beurre d'Aremberg, Glout Morceau.

Mr. Kenrick, in his "American Orchardist," published in 1844, mentions the following 10 varieties as very superior, and admirably adapted for cultivation on the Quince:

Fondante d'Automne, Beurre de Capiaumont, Duchess d'Angouleme, Louise Bonne de Jersey, Marie Louise, Urbaniste, Bartlett, Beurre d'Aremberg, Easter Beurre, Glout Morceau.

The Fruit Growers' Society of Western New York, at its meeting in February, 1856, reported the following as a list of the 9 best varieties for cultivation on the Quince:

Bartlett, Louise Bonne de Jersey, White Doyenne, Lawrence, Vicar of Winkfield, Easter Beurre, Glout Morceau, Sheldon, and Flemish Beauty.

Mr. Parsons, of Flushing, N. Y., one of the best nurserymen in the country, and whose reliable catalogue contains a very extensive list of valuable varieties, in a communication to the editor of the Horticulturist in 1850, remarks: "Of the varieties on the Quince, I have planted only six,

viz :—Glout Morceau, Vicar of Winkfield, Louise Bonne de Jersey, Winter Nelis, Lawrence and Beurre d'Aremberg."

Mr. Parsons' subsequent experience has not been favorable to the culture of dwarf Pears; but from the very flattering results in the case of many others, his may be deemed the *exception*, rather than the *rule*. My own experience, with that of those who are extensively engaged in cultivating Pears as dwarfs has been favorable, with a judicious selection of the varieties cultivated.

The American Pomological Society, at its meeting in Rochester, in September, 1856, recommended the following 21 varieties for growing on the Quince stock, viz:

Beurre d'Amanlis, Beurre d'Anjou, Beurre Diel, Catillac, Duchess d' Angouleme, Easter Beurre, Figue d' Alencon, Fondante d'Automne, Glout Morceau, Long Green of Cox, Louise Bonne de Jersey, Napoleon, Nouveau Poiteau, Rostiezer, Beurre Langelier, Soldat Laboureur, St. Michael d' Archange, Urbaniste, Uvedale's St. Germain or Belle Angevine, (for baking,) Vicar of Winkfield, and White Doyenne.

With due deference to the opinion of the American Pomological Society, I consider the calalogue too large fot a *select list*, and although all these and some others may be cultivated as dwarfs with a pretty good degree of success, still, a dozen only of such varieties as, with good culture and in a proper soil, are never known to fail, are preferable. I would therefore suggest the following 12 varities for *cultivation on the Quince stock*, which can confidently be recommended to all who desire sorts coming early into bearing, and are very productive. They are given in the order of their ripening, viz:

Varieties.	Time of Ripening.
Summer.—Rostiezer,.....	August.
Autumn.—Fondante d'Automne....	Last of September.
Louise Bonne de Jersey..	September and October.
White Doyenne, ...	September to November.
Beurre Diel,.....	September to last of November.
Duchess d'Orleans,.....	October.
Urbaniste,.....	October to November.
Duchess d' Angouleme,..	October and November,
Beurre d'Anjou, ...	October to December.
Winter.—Vicar of Winkfield,.....	November to January.
Glout Morceau,.....	December to January.
Easter Beurre,.....	January to May.

The foregoing list includes *two* varieties that are very desirable; the *White Doyenne* for its exquisite delicious flavor, and the *Easter Beurre* for its excellent keeping qualities. On the Pear stock, however, and sometimes on the Quince, the former has failed in some localities, the fruit being injured by *cracking*; and the latter in not ripening to perfection for dessert use. With a great majority of our best Pomologists, however, they are decidedly favorite sorts, and I have not felt at liberty to leave them off. Another estimable variety, the *Bartlett,* although a decided favorite with many, I have omitted in my list of sorts recommended for *dwarf* culture, from its liability to blight, its comparatively short life on the Quince, owing to its apparent want of affinity with that stock, although it is an abundant bearer of most beautiful and delicious fruit during its vitality. On the *Pear stock,* as an open standard, it is, however, one of the very best varieties grown in the country.

The subsequent illustrations and particular descriptions of the varieties included in the foregoing catalogue, will better enable those who are not perfectly familiar with the kinds mentioned, to select even from this small list, such as are the most desirable, when, for want of space or other reasons, but a very few sorts can be cultivated.

PRODUCTION OF NEW VARIETIES.

In their natural wild state, each of the different kinds of fruits, such as the Cherry, the Peach, the Pear, &c., consisted of one or more species, inferior in their original quality, or which became afterwards degenerated by unfavorable changes of climate, exhausted soils, or other causes. These several species, while in this wild and uncultivated state, always reproduced the same, with occasional slight modifications occasioned by local or incidental causes. To *change*, therefore, this naturally fixed habit of the tree, and obtain new and improved varieties of its fruit, has long been the subject of diligent and persevering effort on the part of many of the most distinguished Pomologists. But it is a process attended with a great degree of uncertainty, and requiring much time and patience. To the interested and enthusiastic culturist, however, it has peculiar atractions. By slow degrees he compels unwilling nature to bend to his continued efforts. "The sour and bitter Crab expands into the Golden Pippin; the wild Pear loses its thorns, and becomes a Bergamot or a Beurre; the Almond is deprived of its bitterness, and the dry and flavorless Peach is at

length a tempting and delicious fruit." Such are the results that attend the persevering efforts of the skilful culturist.

To produce new and improved varieties of the Pear, Dr. Van Mons, of Belgium, so distinguished in Pomological science, has labored with indefatigable energy and perseverance nearly his whole lifetime for this object, the results of which are a great number of new varieties of rare excellence. His theory, however, could not be expected to be *perfect*, although much valuable instruction has been drawn from his experience. His theory was briefly this. —The aim of nature is simply a healthy, vigorous state of the *tree*, producing nearly perfect *seeds* for its own continued propagation. The object of culture should be, to reduce excess of vegetation in the tree, diminish the size of the seeds, and increase the size and improve the quality of the pulp or fruit which encloses them. He also maintains that the *older* the tree of any cultivated variety of the Pear, the nearer will the seedlings produced from it, approach its original wild state; while seedlings from the fruit of *young* cultivated trees of good sorts, more frequently produce improved varieties.

Dr. Van Mons, acting on this principle, selects his seeds from young *seedling trees*, sows them in his seed bed, where they remain until they are of a size sufficient to enable him to judge of their character. He then selects the most vigorous and promising, plants them out and patiently awaits their fruiting. The first seeds from the best of these he again sows, and repeats the operation. Each generation comes more quickly into bearing than the one preceeding it; the *fifth* sowing often coming into bearing in *three* years, and producing fruit, in many instances, of rare excellence. Whatever we may think of his theory, the results, as before

remarked, have been several new varieties productive in habit, and of delicious flavor. Following this plan, in order to produce improved varieties of the Pear, we must first be careful to plant the seeds of *seedling Pears* of healthy and vigorous growth, and continue the process until we have attained our object, viz, new varieties of a high degree of excellence.

This is the Belgian method, from which some of the fruit culturists in England and our own country dissent, and maintain that new varieties may be obtained from the seeds of the most valuable sorts of our *grafted Pears*, equally as good as by the Van Mons mode, and without his long and repeated process of successive plantings; and claim that some of our native favorite fruits were obtained at once from the seeds of the old *grafted* varieties. In some instances this is doubtless true, but whether the result is from chance or otherwise, we cannot with certainty determine. Should the Amateur desire to engage in the pleasant but somewhat tardy process of propogating new varieties, it would be advisable to employ both methods, carefully keeping each distinct and separate from the other, and compare the results.

New Varieties by Fertilization.—This is a process for obtaining new varieties by cross impregnation, or fertilizing the pistil of one variety with the pollen of another. It was advocated and practiced by T. A. Knight, Esq., formerly President of the Horticultural Society, of London, and is now generally practiced in England, as well as by many of our own fruit growers, with success.

The Pear blossom has five central organs elevated above the others, called the *pistils*, the upper or enlarged extremity of each of which is called the *stigma*. These are

surrounded by other delicate thread-like organs called the *stamens*, supporting on their upper extremity the *anthers*. These last are little receptacles containing the pollen or fertilizing dust. In their natural operation, when the flowers open, the anthers become distended, and when perfectly ripe, burst and discharge their pollen on the stigma, whose gummy exterior receives and retains the fertilizing shower, rendering fruitful the young seed lying at its base. This same process artificially performed, by impregnating or fertilizing the pistil of one variety of fruit with the pollen of another, will produce a fruit partaking in some degree of the properties of both. This is performed by simply clipping off, with a pair of fine scissors, all the stamens, (before the blosom is fully expanded,) of the variety which is intended to be impregnated, carefully leaving the pistils untouched, and when the flower is fully expanded, and the stigma properly matured, (which will be indicated by its glutinous surface,) transfering to it with a camel's hair pencil, the pollen of the sort with which it is to be crossed. This process does not particularly affect the *fruit*, but the *seeds* partake of the nature of both the original sorts, and produce trees which yield intermediate varieties of new, and frequently of rare and valuable qualities. By this means some of the present excellent sorts have been obtained, both in Europe and our own country.

It will be seen at once that the process should be performed before the stigma of the blossom is impregnated with its own pollen, or that of the surrounding flowers, as it is impossible after that to innoculate it again. To prevent this, a thin gauze covering should be placed over it for a few days before and after the operation, to protect it from the pollen floating in the air, or from the intrusion of insects, by which, sometimes, the flower becomes accidentally impregnated.

PLANTING AN ORCHARD.

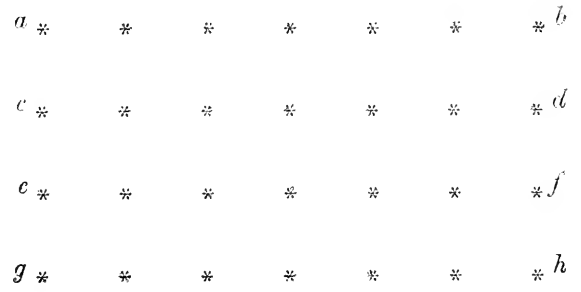
In selecting a site for an orchard, the cultivator should in all cases, when practicable, have reference to the situation, nature of the soil, &c., as much of his future success in fruit growing may depend on this. The situation rather to be prefered for an orchard, should be a gently elevated locality, or a side hill with a very easy declivity towards the west or southwest. The low bed of a valley, unless drained by a river or running stream, should, if possible, be avoided. The best soil for the Pear is a deep, friable loam, rather moist, with a gravelly subsoil. It should be carefully prepared, either by deep ploughing, or trenching, and when thoroughly pulverized, well manured. When the time and expense can be afforded, the entire surface should be trenched, to the depth of two or three feet, and manure plentifully and thoroughly intermingled with the soil the whole depth. If this is considered impracticable, a deep and thorough ploughing, cross ploughing and subsoiling, with a plentiful manuring, is indispensable in all cases.

The surface thus prepared, the next process will be

LAYING OUT THE GROUNDS.

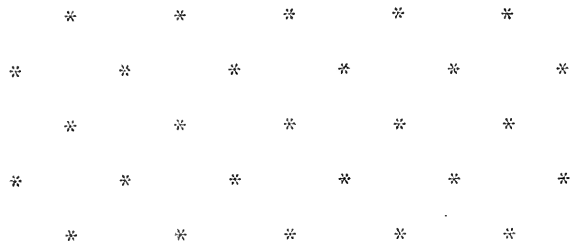
This is a matter of considerable importance, as nothing is more unsightly in appearance, or obnoxious to good taste,

than the irregular, crooked, awkward apologies for *rows* that we see in some orchards. This is as inconvenient in working, as it is unpleasant to the eye, particularly as a thorough cultivation of the grounds is indispensable to the vigor and fruitfulness of the trees. The most simple and common plan is, to set out trees in rows at equal distances, crossed by other rows at the same distance, or "running both ways," leaving the trees standing in equal squares, thus :



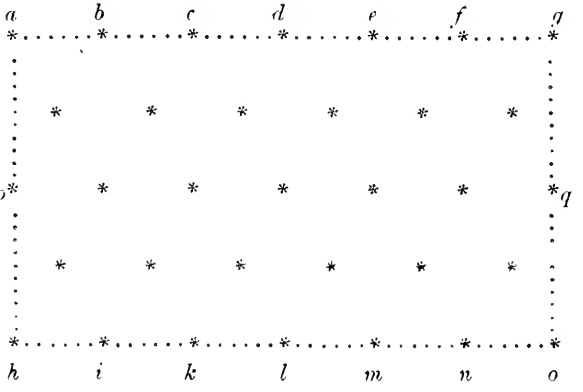
This is a very simple operation, requiring only a measure of equal distances between the *trees* of the first row, and the *rows* of trees which follow. Plant the first row of trees at equal distances from each other, in a perfectly straight line, setting the trees *a* and *b* first. Next set the row *a g* at right angles with *a b*, in the same manner, observing the same distance between each tree, setting the tree *g* first. Then lay off the rows *g h* and *b h* parallel with *a b* and *a g*, and set a stake perpendicularly at *h*. Drive stakes where each tree in the rows *g h* and *b h* is intended to stand, and you have a perfect guide by ranging with the eye from stake to tree, each way, for the exact place of every remaining tree in the orchard, setting those that are to occupy the places of the stakes last.

Another mode of arrangement is sometimes adopted by orchardists called the *simple quincunx* form, as follows:



But this is merely a modification of the former method, or in reality, is the same form of equal squares, diagonally arranged. It has no peculiar advantages, unless in certain instances for some reason it may be desirable to change the direction of the rows.

A very essential improvement, however, is the *hexagonal* or *improved quincunx* method of planting. Its advantages are, a more exact equality of space, better facilities for cultivation, and free circulation of air, from having the rows running in three directions, instead of two; together with greater beauty and harmony of arrangement, as will be seen by the annexed diagram.

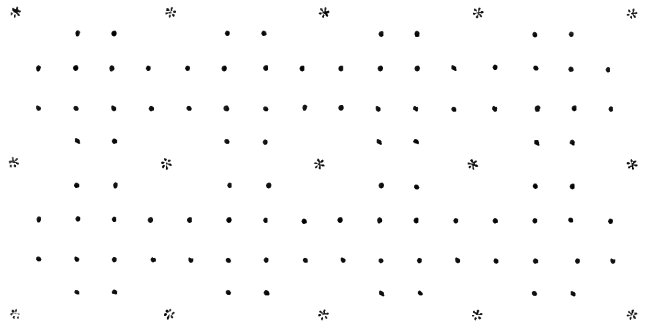


To lay out an orchard after this plan appears more difficult than either of the former methods, but in reality, it is very easy,* requiring only a nice and accurate measurement, to get the proportionate distances. This can be ascertained as follows: First drive a stake perpendicularly at the corner *a*, then draw the line through from *a* to *g*, where you intend the first row of trees to stand. Next draw the line from *a* to *h*, precisely at right angles with *a g*. These two lines must be drawn with mathematical correctness, as on this depends the regularity of the whole arrangement. Now measure the exact distance that you wish the trees to stand from each other, measuring from the *center* of the stake *a*, on a line with *g*, and drive down stakes at *b*, *c*, *d*, *e*, *f* and *g*, for every tree in that row. Then take just *double* the distance from *a* to *b* on your line, measuring from the center of the stake *b*, and the precise point where this line touches the line *a h*, will be the place of the first tree in the row *p q*. Drive a stake at *p*, and measure the distance from *a* to *p*, which will be the exact distance of all the trees in the line *a h*. Now if the distance of the trees *a b*, *c*, *d*, &c., is thirty feet from each other in the row *a*, *g*, the distance from *b* to *p* will be sixty feet, and the distance from *a*, *p*, *h*, &c., fifty-one feet, eleven and three quarter inches. Now draw the lines *h o* parallel with *a g*, and *g o* parallel with *a h*, and set off the distances each thirty feet in

* This may be mathematically demonstrated as follows:—The distance that the trees are designed to stand from each other is known, say thirty feet. This distance forms the side of the right angle triangle *a b p*, the side *b p* of which is precisely *double* that of *a b*, or sixty feet. The square root of the *difference* between the squares of the sides *a b* and *b p*, will be fifty-two feet, eleven and three quarter inches, the distance for all the trees in the rows *a h* and *g o*, and so of any other distance that the culturist may prefer.

the row *h o*, as in *a g*, and fifty-one feet, eleven and a half inches in *g o* as in *a h*, and drive stakes at *i*, *k*, *l*, *m*, *n*, *o*, *q* and the intersecting lines *p i*, *a k*, *b l*, *c m*, *d n*, *e o*, *f q*, with those of *b p*, *c h*, *d i*, *e k*, *f l*, *g m*, and *q n*, will be the exact positions of all the trees in the plot, which may then be set by simply ranging with the eye from stake to stake, leaving the trees to occupy the places of the stakes, the last to be set. This is the most economical, convenient and beautiful arrangement for an orchard, that has been adopted. Every three trees form an equilateral triangle, and each tree in the plot, (the outside ones excepted,) stand exactly in the centre of a circle, described by six others standing at equal distances around it.

For the Pear culturist, however, it is very desirable to obtain fruit from his orchard without waiting ten or fifteen years for a crop from his standard trees, and as those of *dwarf* varieties come at once into bearing, and occupy but little space, it is well to set the two kinds together. Mr. Cole's method of doing this is as follows:



* *Standards.* . *Dwarfs.*

Mr. Barry recommends the following form for the same purpose, varying somewhat the plan, and forming a better arrangement, particularly while the standards are small.

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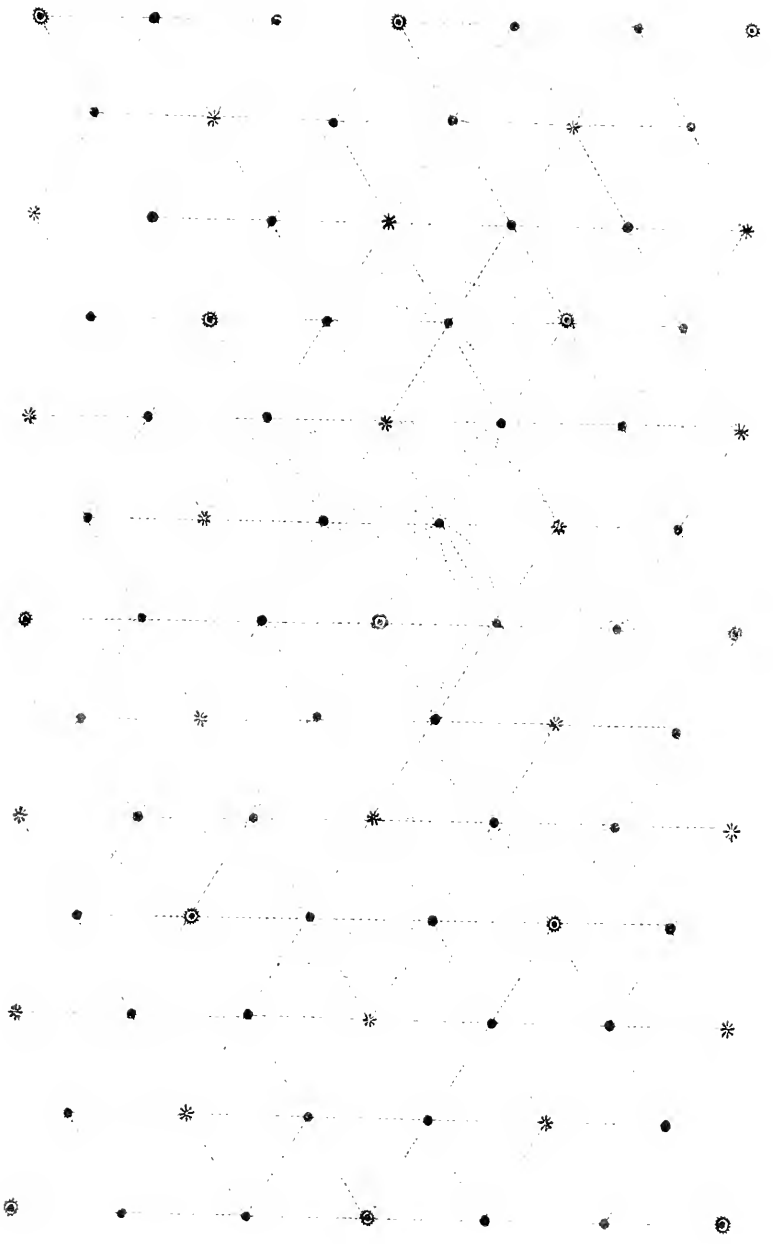
o *Standards.* . *Dwarfs.*

Instead of twelve dwarfs to each standard, as Mr. Cole proposes, he has only three dwarfs to each standard tree, making, however, the distances more equal, and the distribution more uniform throughout the plot.

The plan of setting dwarfs with standard trees in planting a Pear orchard, is an excellent one, and both the preceding arrangements have merit, but each seems in some degree defective. By Mr. Cole's method the standards must be set at an unnecessary distance, or the dwarfs will be to much crowded. By Mr. Barry's plan the standards must be set *nearer* than usual, or the dwarfs will stand to sparsely. To remedy these, I would propose the plan indicated by the diagram on the opposite page. Adopting the *quincunx* form, I place *standard* trees (⊙) at equal distances of thirty feet over the entire plot. These form perfect equilateral triangles, in the center of each of which I plant a *pyramid* or



half standard tree (⁂). This done, each original equilateral triangle becomes *three*. In the center of each of these I plant a *dwarf*. (•) This completes the arrangement. First, all the standard trees are thirty feet distant from each other, and surrounded at equal distances of seventeen feet with six pyramids, within which, at a distance of ten feet, is a circle of six dwarfs. Every pyramid stands in the center of an equilateral triangle of standards, and is also surrounded with an inner circle of dwarfs, just ten feet from it making every tree, standard, pyramid and dwarf, throughout the entire plot, equi-distant from its fellow, and so arranged as to admit of a free circulation of air, and the easiest and most thorough cultivation of the soil.

From the different methods of planting Pear orchards which have been described, we have on an acre by each of the foregoing plans, as follows:

1st. By the old method of planting standards in squares 30 feet each way.	48 standards.
2d. Mr. Barry's method of planting standards at the same distance, and dwarfs between them.	48 standards. 144 dwarfs.
3d. Mr. Cole's plan of standards 30 feet apart, with double rows of dwarfs between.	48 standards. 476 dwarfs.
4th. The author's arrangement, of standards 30 feet from each other, pyramids or half standards 17 feet distant, and dwarfs 10 feet	56 standards. 112 pyramids, 336 dwarfs.

By the last plan we secure *equal distances*, and while on each acre we plant eight more standards, and but twenty-eight less pyramids and dwarfs then by Mr. Cole's method, we obtain the same distance between the former, and two and a half feet, or a distance *greater by one quarter* between the latter, than by his.

There is another peculiarity in regard to this plan, however, that should recommend it to notice. It is the arrangement by which, after fifteen or eighteen years, when the standard trees have increased in size, and become prolific bearers, *all the dwarf trees in full bearing condition may be transplanted to other grounds*, leaving the pyramids in perfect regular order, to occupy all the equal spaces left between the standards, until, if necessary, these too may be removed, leaving the standard trees alone to bear prolific crops, year after year, probably outlasting the present generation.

An orchard on the above plan, an acre in size, may be set at once with its fifty-six standards, one hundred and twelve pyramids and three hundred and thirty-six dwarfs. Within and between the rows may be planted, at a distance of five feet, fifteen hundred and twelve Quince or Gooseberry bushes, which, with the same cultivation that the Pear trees receive, will produce fair crops of fruit until the Pears come into full bearing.

If the trees are properly cultivated, the second and third years the dwarfs and pyramids will come into bearing, and the fourth and fifth years generally will give the culturist a generous return in fruit, of at least an average of a dollar for each tree, and in five or six years, when in *full* bearing, probably twice that amount, annually; the standards meanwhile maturing for their own future yield of still more heavy and remunerative crops.

SPECIMENS.

The specimens of fruit given in the following pages will be found arranged in alphabetical order, correctly delineated and carefully described. The varieties embrace generally those that combine vigor of growth in the tree, excellent qualities in the fruit, and productiveness in bearing. These varieties also include not only the most valuable sorts for standards, but those that are also most certain and productive on the Quince stock. The time of ripening commences with the early Madeleine in July, and ranges successively through the season, until May of the succeeding year, which ends the catalogue with the queen of long keeping Pears, the *Easter Beurre*, delicious even at its late maturity. Those who desire to add specimens from time to time, will find blank pages left for this purpose near the close of the volume.

Bartlett.

BARTLETT PEAR.

FRUIT.

SIZE.—Large, nearly four inches in length, and three in diameter.

FORM.—Ovate, obtuse pyriform, with an irregular surface.

STEM.—Rather short, an inch to one and a quarter long, stout, inserted in a shallow cavity.

CALYX.—Medium, nearly open, placed in a very shallow, furrowed basin.

SKIN.—Very smooth and thin.

COLOR.—A fine clear yellow, with a beautiful rich blush on the sunny side, when fully ripened.

FLESH.—Yellowish white, very fine grained, juicy, melting and buttery.

FLAVOR.—Rich, saccharine, perfumed, delicious.

SEASON.—Last of August to October.

TREE.

Upright, thrifty shoots, yellowish brown, vigorous in its growth, and very productive.

REMARKS.

This noble pear is one of the best and most popular of our autumn varieties. It originated in Berkshire, England, as "*William's Bonchretien*," by which name it is now known in Europe. The first tree imported, was sent from England to Mr. Bartlett of Dorchester, Mass., from whom it received its name in this country. It has the property of perfectly maturing in the house, even if picked very green. We have ripened specimens that were not more than three-fourths grown, and by keeping the fruit in a cool, dry room, preserved them as late as the last of November. They exhibited a beautiful blush on the exposed side, were rich, sugary, melting and delicious to the taste. The tree yields constant and plentiful crops, both on the Pear and Quince stock.

BEURRE BOSC PEAR.

FRUIT.

SIZE.—Large, frequently measuring four inches in length, by three in diameter.

FORM.—Acute pyriform, tapering gradually into the stem.

STEM.—Long, one and a half to two inches in length, slender, curved.

CALYX.—Medium, segments short, set in a round, shallow basin.

SKIN.—Tolerably smooth and thin.

COLOR.—Deep yellow, nearly covered with dots and marblings of cinnamon russet, with a very slight tinge of brownish red on the sunny side.

FLESH.—White, buttery, juicy and melting.

FLAVOR.—Rich, sweet, slightly perfumed, delicious.

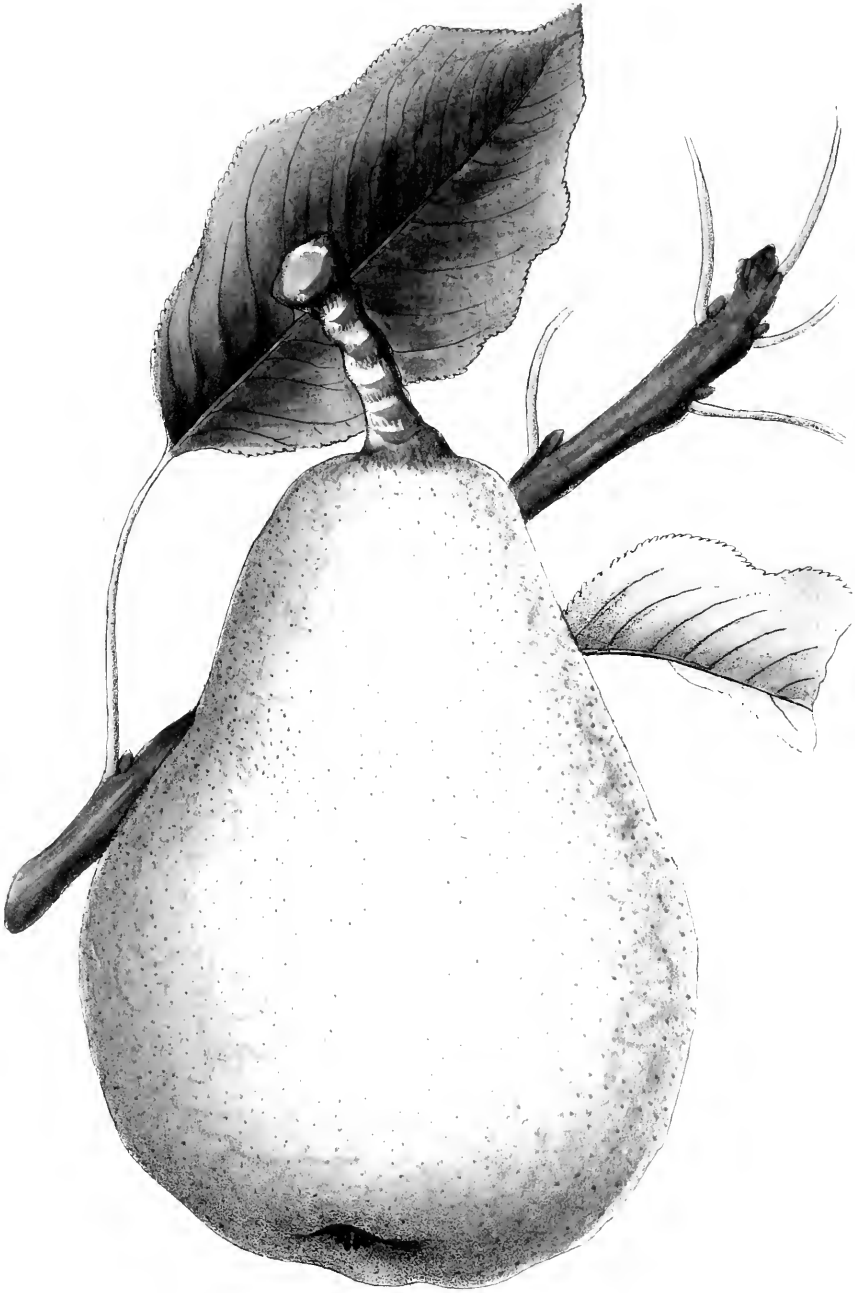
SEASON.—September and October.

TREE.

Vigorous, long brownish olive shoots, very hardy and productive.

REMARKS.

This noble fruit was first raised in 1807, by Van Mons, and named by him in honor of M. Bose, a very distinguished Belgian cultivator. It is a pear of the highest excellence, of which Mr. Downing remarks, "We give it our unqualified praise. It is large, handsome, a regular bearer, always perfect, and of the highest flavor." It bears singly, the fruit very uniformly distributed over the tree, consequently requiring no thinning. One of the most beautiful trees of this variety that we have seen, is on the grounds of Henry P. Haven, Esq., of New London, Conn. It is of fair size, regular in form and appearance, and although young, produces annually immense crops of fine fruit of the most delicious flavor. It succeeds admirably on the Pear stock, and on the Quince, if *double worked*, is also said to succeed very well.



Beurre Clairgeau

BEURRE CLAIRGEAU PEAR.

FRUIT.

Size.—Large, more than four inches long and three inches in diameter.

Form.—Oblong, obovate pyriform, a little irregular.

Stem.—Medium length, stout, rather fleshy at the base, obliquely inserted without depression.

Calyx.—Small, open, short segments, set in a small basin.

Skin.—Thick, slightly rough.

Color.—Brownish green, freely mottled with russet, covering a large portion of its surface, and tinged with brownish red on the sunny side.

Flesh.—Yellowish white, a little coarse, melting, juicy.

Flavor.—Rich, vinous, with an agreeable aroma.

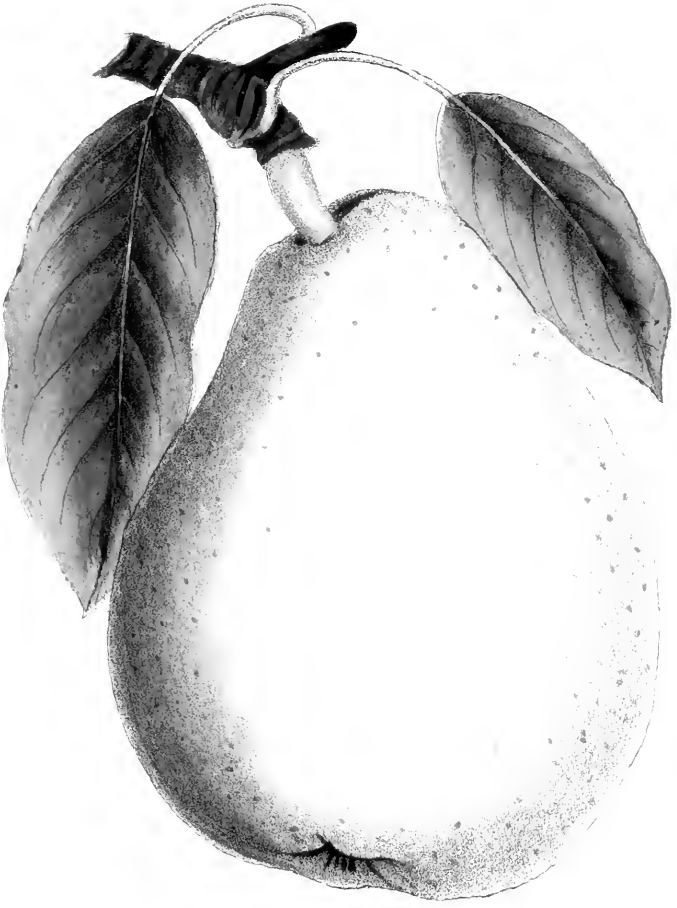
Season.—Last of October and November.

TREE.

A strong thrifty grower, stout wood and fine foilage.

REMARKS.

This is a new variety, originating with Mr. Clairgeau, of Nantes, and brought into notice by Col. Wilder of Boston. It is a very large fruit, and Mr. Barry says, so far as has been tested in New York and Massachusetts, "gives promise of being a valuable acquisition." Mr. Elliott thinks it will prove "one of the most valuable, as a large sized, fine quality pear, and desirable on the Pear root as an orchard variety." Col. Wilder recommends the tree as "a strong thrifty grower, either on the Pear or Quince root," and one that comes early into bearing.



Beurre d'Anjou

BEURRE D'ANJOU PEAR.

FRUIT.

Size.—Large, nearly four inches long and three in diameter.

Form.—Oblong, obovate, obtuse pyriform, surface and outline slightly irregular.

Stem.—Short, thick, curved, inserted with a slight depression.

Calyx.—Open, segments thick, set in a small basin.

Skin.—Moderately thin, slightly rough.

Color.—Greenish yellow, with russet dots, russetted around the the stem, with a brownish red cheek on the sunny side.

Flesh.—White, with delicate greenish veins running through it, juicy, buttery and melting.

Flavor.—Rich, vinous, aromatic, delicious.

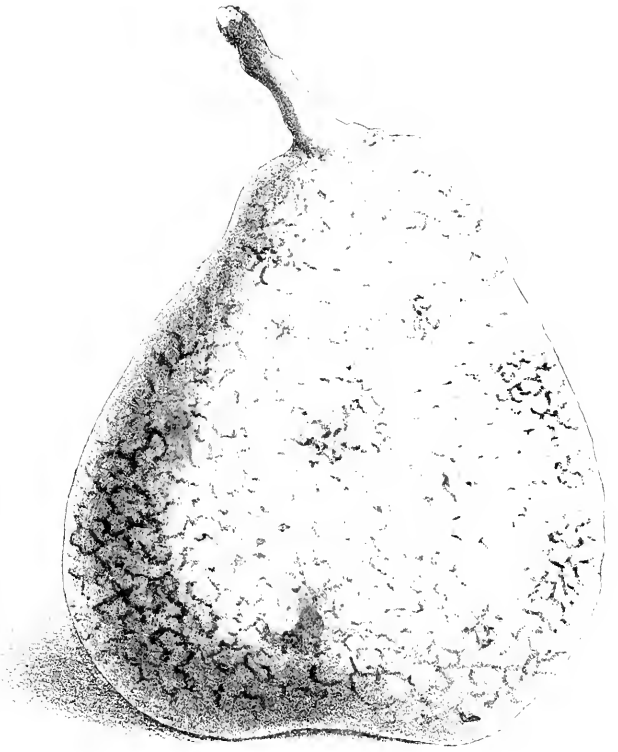
Season.—October to December.

TREE.

Vigorous, hardy, healthy, and very productive.

REMARKS.

This is an old French variety of great excellence, introduced into this country a few years since, succeeding well on either the Pear or Quince stock. Its many good qualities render it a very desirable fruit for garden or orchard culture. On the Quince stock, particularly, it grows to a very large size, and attains the highest degree of excellence.



Beurré d'Aremberg.

BEURRE D'AREMBERG PEAR.

FRUIT.

SIZE.—Large, three inches long by two and a half in diameter.

FORM.—Obovate, obtuse pyriform, tapering towards the stem.

STEM.—Short, about three fourths of an inch long, stout, knotty, very fleshy where it joins the fruit, set obliquely on one side without depression.

CALYX.—Small, short segments, set in a deep basin.

SKIN.—Thick, rather rough and uneven.

COLOR.—Pale greenish yellow, becoming light yellow at maturity, marked with tracings and dots of light russet, particularly around the stem.

FLESH.—White, buttery, melting and very juicy.

FLAVOR.—Rich, saccharine, perfumed, highly vinous and delicious.

SEASON.—November to February.

TREE.

Upright, strong, young branches clear yellowish brown, long jointed, slightly rough, dotted with pale specks, and moderately vigorous.

REMARKS.

In the Report of the Massachusetts Horticultural Society for 1852, the Beurre d'Aremberg is described as "one of the best, if not the very best late pear under cultivation." It thrives best in a rich, warm soil, hangs late on the tree and ripens well in the house, from December to February. The tree bears young, succeeds well both on the Pear and Quince stock,—produces annual and abundant crops, and is a fine vigorous grower. This fruit from the quince stock is said, by Pomologists, to keep much better than that produced on open standards. It is a French variety.

Beurre Diel

BEURRE DIEL PEAR.

FRUIT.

Size.—Large, three and a quarter inches long, and nearly the same in diameter.

Form.—Obovate, obtuse pyriform.

Stem.—Varying from an inch to an inch and a half in length, stout, slightly curved, and inserted in a narrow cavity.

Calyx.—Medium, nearly open, segments long, placed in an abrupt and rather irregular basin.

Skin.—Rather thin, with a little roughness.

Color.—Yellowish green, changing to a fine orange yellow at maturity, sprinkled with brown dots and patches of russet.

Flesh.—Yellowish white, rather coarse grained at the core, but juicy, buttery and melting.

Flavor.—Rich, saccharine, and agreeably perfumed.

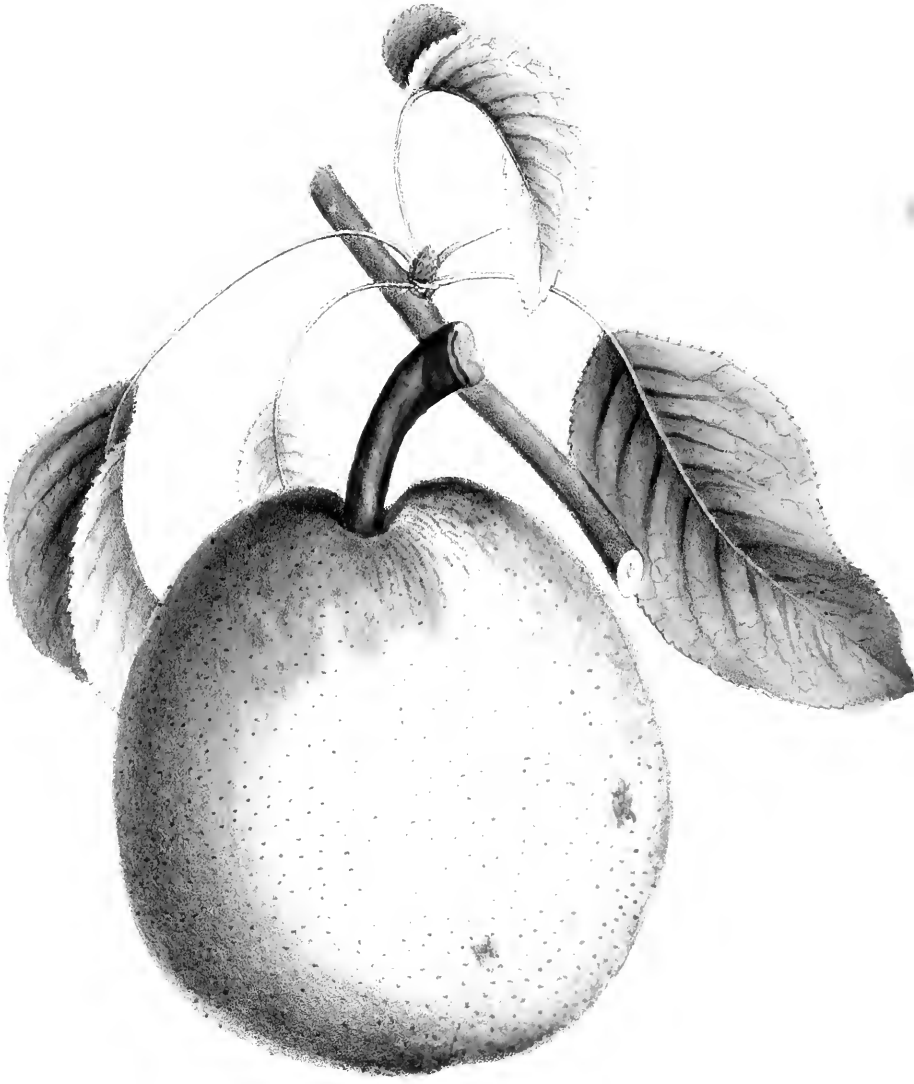
Season.—September to last of November.

TREE.

Remarkably vigorous, with fine foilage, young wood dark olive brown, branches long and stout—very productive.

REMARKS.

The *Beurre Diel* is a fine Belgian variety, a seedling of Dr. Van Mons, first raised by him in 1805. It succeeds best in a warm, rich soil, with high culture, and under favorable circumstances, produces fruit of very large size, and exquisite flavor. In regard to vigorous habit, beauty of form, and productiveness, the tree can scarcely be surpassed. The fruit should be gathered and matured in the house, in a dry, moderately warm place, being kept from the light while ripening. It succeeds on both the Quince and Pear stock, particularly the former.



Easter Beurre

EASTER BEURRE PEAR.

FRUIT.

SIZE.—Large, three to three and a half inches long, and three in diameter.

FORM.—Globular, obtuse pyriform.

STEM.—Short to medium, stout, inserted in an abrupt, deep cavity.

CALYX.—Small, nearly closed, set in a moderately sunk, uneven basin.

SKIN.—Rather rough.

COLOR.—Yellowish green, thickly sprinkled with patches and dots of russet—in some specimens a dull red cheek appears on the sunny side.

FLESH.—White, tolerable fine grained, juicy, buttery and melting.

FLAVOR.—Rich, saccharine, delicious.

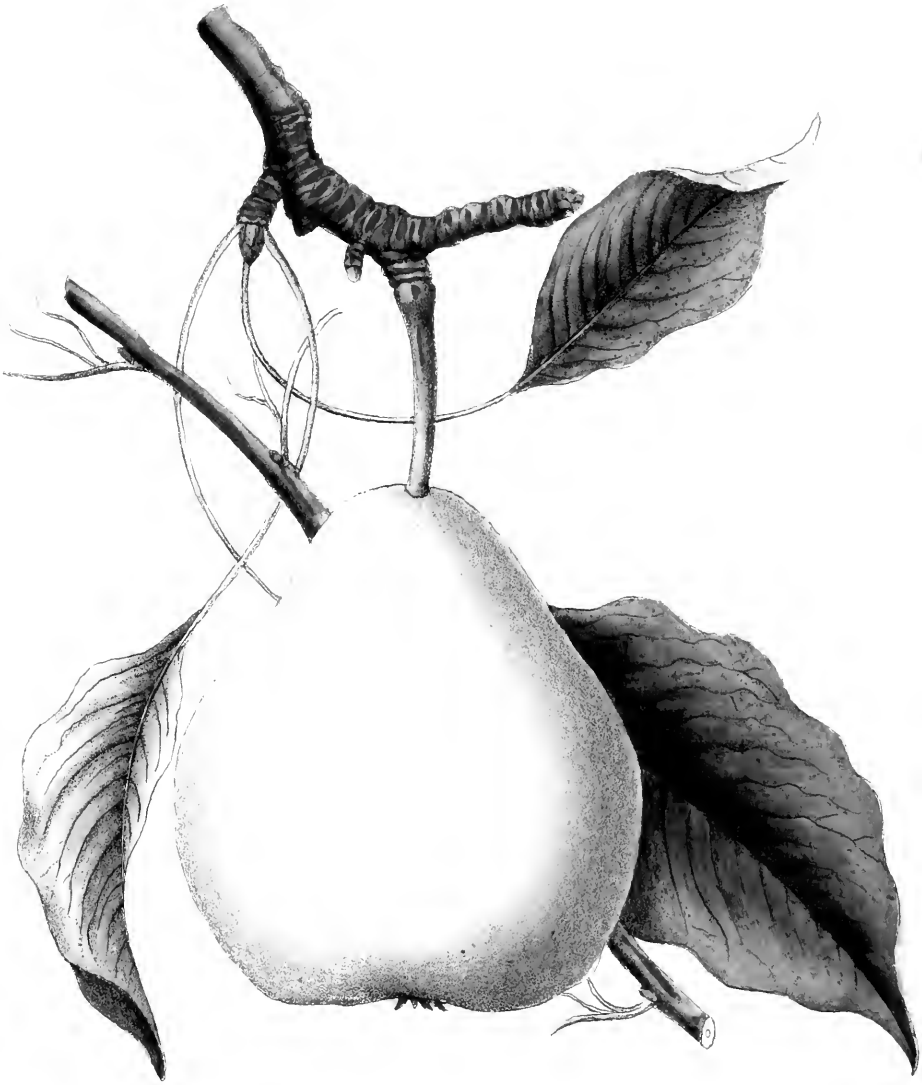
SEASON.—January to May.

TREE.

Thrifty, vigorous, upright, with reddish yellow shoots, requiring in the Northern States a warm exposure.

REMARKS.

This is one of the most excellent of the long keeping varieties of the pear, particularly when grown on the Quince stock, to which it seems particularly adapted. It is a large and delicious fruit, when perfectly ripened, and will frequently keep until May. It is best ripened in a warm room. The tree is a good grower, and with high culture, in a warm situation, it attains a very good size on the Quince stock, producing abundant annual crops.



Beurre Giffard Pear

BEURRE GIFFARD PEAR.

FRUIT.

Size.—Medium to large.

Form.—Acute pyriform.

Stem.—Medium, one inch, to an inch and a half long, pretty stout, and inserted without any depression, except in rare cases.

Calyx.—Closed, segments long and stiff, set in a narrow basin.

Skin.—Smooth.

Color.—Greenish yellow in the shade, sprinkled with carmine dots; sunny side red, varying from dark to light spots and stripes.

Flesh.—White, tender, and juicy.

Flavor.—Sprightly, vinous, with somewhat of a spicy perfume.

Season.—First to the 10th of August.

TREE.

Remarkably distinct in its growth, wood and foliage, the leaves small, bark, reddish brown. A moderate grower and an abundant bearer.

REMARKS.

This excellent summer Pear, recently introduced from France, has, we think, strong claims to popular favor. It is noticed and illustrated by Mr. Barry in the "*Horticulturist*," (whose description we have quoted above,) as a very fine fruit, and may, we think, be safely recommended as being well worthy of extensive cultivation. It succeeds on the Quince stock as well as an open standard, and the tree bears very freely. Specimens raised on the Quince measured three inches long and nearly two in diameter. Like many other varieties of the pear, it should be gathered green and kept in the house a week or ten days to ripen. This is necessary to obtain its perfect flavor.

Bloodyseed

BLOODGOOD PEAR.

FRUIT.

SIZE.—Medium, about two and a quarter inches long, and two inches in diameter.

FORM.—Obovate, inclining to turbinate.

STEM.—Rather short, about an inch in length, fleshy at the base, curved, and obliquely inserted without depression.

CALYX.—Large, open, and set in a very slight, broad basin.

SKIN.—Thin and smooth.

COLOR.—Yellow, marbled and dotted with russet.

FLESH.—Yellowish white, buttery and melting.

FLAVOR.—Rich, saccharine, and aromatic.

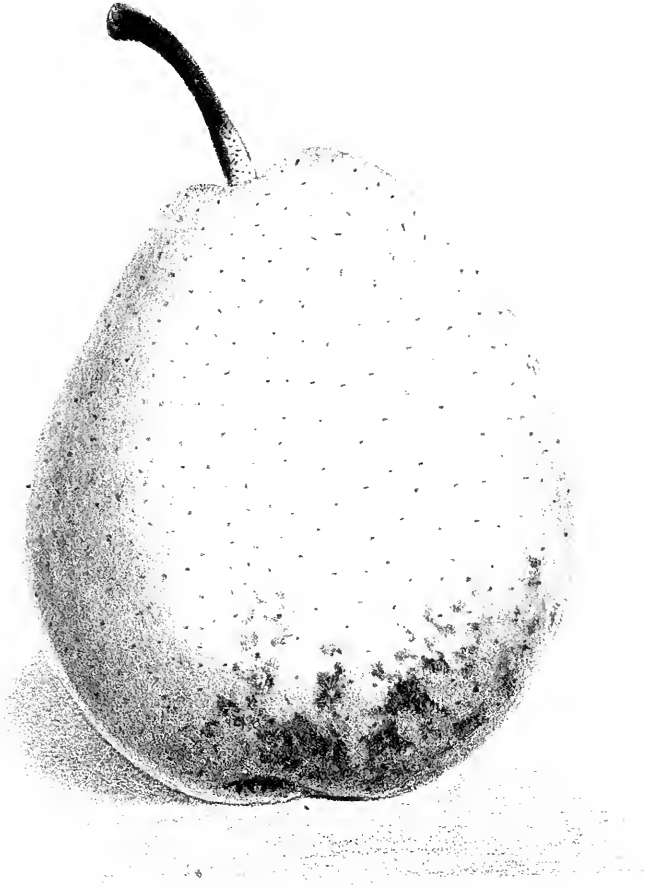
SEASON.—Last of July and early in August.

TREE.

A moderately vigorous grower, wood short jointed, rich reddish brown color, an early and regular bearer.

REMARKS.

The *Bloodgood* is a fine early variety, well deserving the high commendations generally bestowed upon it. It is one of the best flavored *early* pears, being rich, sugary and melting if well ripened in the house. Mr. Downing says, "It surpasses every European variety of the same season, and will supplant in our gardens the Jargonelle, and all inferior garden pears." This fruit originated on Long Island, and was first introduced into notice by Mr. Bloodgood, of Flushing, from whom it derived its name. It succeeds best in a rich, warm soil, and succeeds both on the Quince and Pear stock, forming a fine Pyramid on the former.



Colombu.

VAN MONS LEON LE CLERC PEAR.

FRUIT.

Size.—Large, about four and a half inches long, and three in diameter.

Form.—Oblong, obovate pyriform, very regular.

Stem.—Medium, about an inch and a half long, rather stout, slightly curved, and obliquely inserted in a slight depression.

Calyx.—Large, open, with broad flat segments, placed in a shallow basin.

Skin.—Slightly rough.

Color.—Yellowish green, with small, irregular dots and marblings of russet, more strongly marked near the stem; sometimes with a delicate blush on one side.

Flesh.—Yellowish white, buttery and melting.

Flavor.—Rich, saccharine, sprightly, and perfumed.

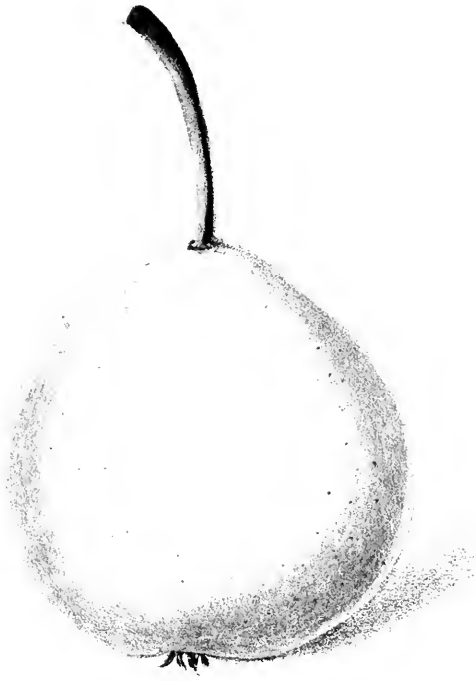
Season.—October and November.

TREE.

Moderately vigorous, upright, light olive wood, with grayish shoots, marked with light round spots. It bears young and abundantly, particularly on the Quince.

REMARKS.

This noble fruit was produced from seed by Mr. Leon Le Clerc, and named by him in honor of Van Mons, the distinguished horticulturist. It was first fruited about twenty years ago, and was introduced into this country from the island of Jersey, in 1840. It is very favorably noticed in the transactions of the Massachusetts Horticultural Society, and sustains a very high reputation generally. It is well adapted to the Quince stock and bears fair crops, requiring good soil and culture. Scions commence bearing in about three years, and either on the Pear or Quince succeed admirably.



Dearborn's Seedling.

DEARBORN'S SEEDLING PEAR.

FRUIT.

SIZE.—Small, about two inches long and two in diameter.

FORM.—Roundish, inclining to obovate, narrowing a little to the stem.

STEM.—Medium, one inch to an inch and a quarter in length, smooth, slender, curved, and obliquely inserted in a slight cavity.

CALYX.—Segments short, thick, spreading, and set in a shallow basin.

SKIN.—Smooth and thin.

COLOR.—Light green, changing to a beautiful yellow at maturity, dotted with fine specks of russet, with a delicate russet tint around the stem.

FLESH.—Yellowish white, fine grained, buttery, melting and juicy.

FLAVOR.—Rich, saccharine, delicious and delicately perfumed.

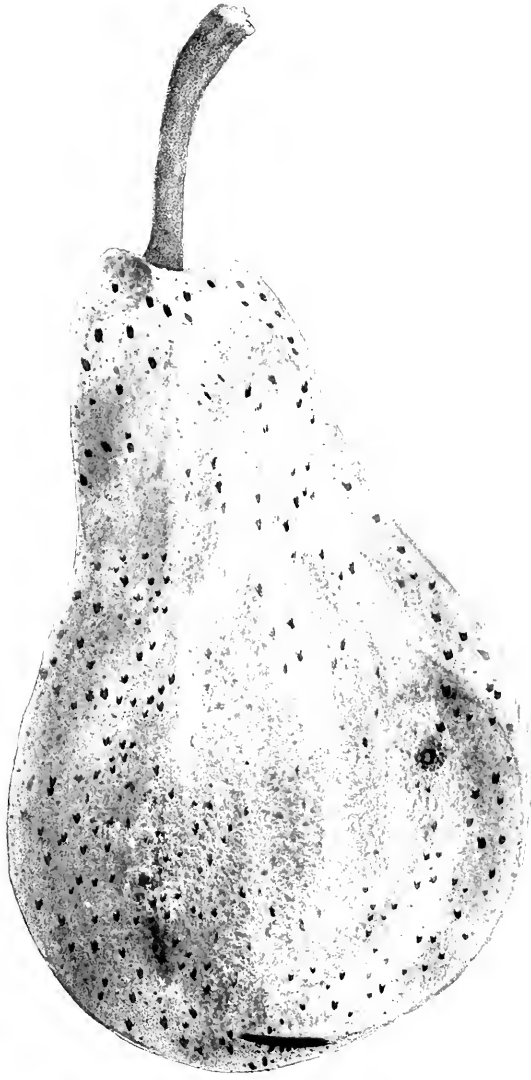
SEASON.—Middle of August to September.

TREE.

Very hardy, erect, the ends of the horizontal branches inclining upwards, young shoots dark brown, long and vigorous.

REMARKS.

This excellent Summer Pear is a seedling that originated on the grounds of the Hon. H. A. S. Dearborn of Roxbury Mass., who first discovered it in a clump of shrubbery on the border of an open avenue. It first fruited in 1831, and proves to be one of the most desirable early varieties in New England. The fruit is exceedingly rich and fine flavored, and the tree is vigorous, hardy, and very productive, bearing abundant crops in nearly every variety of soil. It succeeds very well on the Quince, but is rather to be recommended as an open standard, being well adapted to garden culture.



Pear.

DIX PEAR.

FRUIT.

Size.—Large, about three and a half inches in length, and two and a half in diameter.

Form.—Oblong, pyriform.

Stem.—Medium, a little more than an inch long, stout, enlarged at both ends, inserted rather obliquely in a very slight depression.

Calyx.—Rather small, open, placed in a narrow and very shallow basin.

Skin.—Thick, coarse, rather rough.

Color.—Yellowish green, yellow at maturity, mottled with russet, particularly around the stem, sometimes a dull red cheek in the sun.

Flesh.—Yellowish white, very juicy, melting and tender, but rather coarse grained.

Flavor.—Rich, saccharine, sprightly, slightly perfumed.

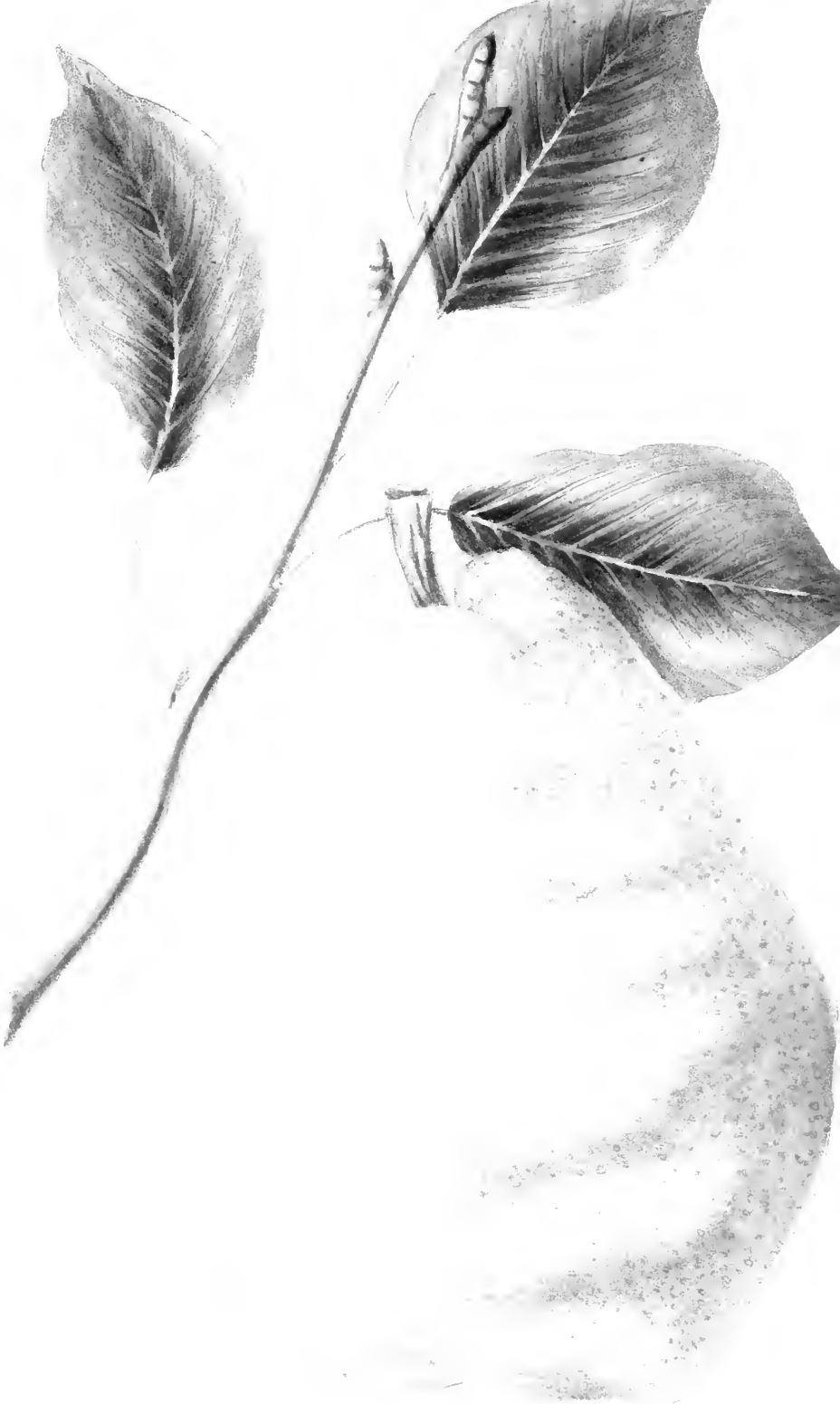
Season.—October and November.

TREE.

Remarkably hardy, not of very rapid growth, young branches pale yellow, slender, upright, forming a thick head with good cultivation. Very healthy and productive.

REMARKS.

This excellent Pear originated in Boston, where the original tree is still standing, in the old garden of Madam Dix, on Washington-street. It bore for the first time in 1826, and has produced, regularly, good crops. Mr. Downing says, "The Dix is unquestionably a fruit of the highest excellence, and well deserves the attention of all planters." Although it does not come into bearing as early as some other varieties, it produces abundant crops. It requires to be double worked to succeed well on the Quince stock.



DUTCHESS D'ANGOULEME PEAR.

FRUIT.

SIZE.—Very large, frequently weighing from sixteen to twenty ounces each.

FORM.—Oblong, obovate pyriform, generally with an uneven and irregular surface.

STEM.—Rather large, varying from one to two inches in length, stout, curved, and inserted in an irregular and rather deep cavity.

CALYX.—Medium, partly closed, placed in a deep, uneven basin.

SKIN.—Rough.

COLOR.—Greenish yellow, with a brownish tinge, marbled and dotted with russet.

FLESH.—White, juicy and buttery.

FLAVOR.—Rich and excellent.

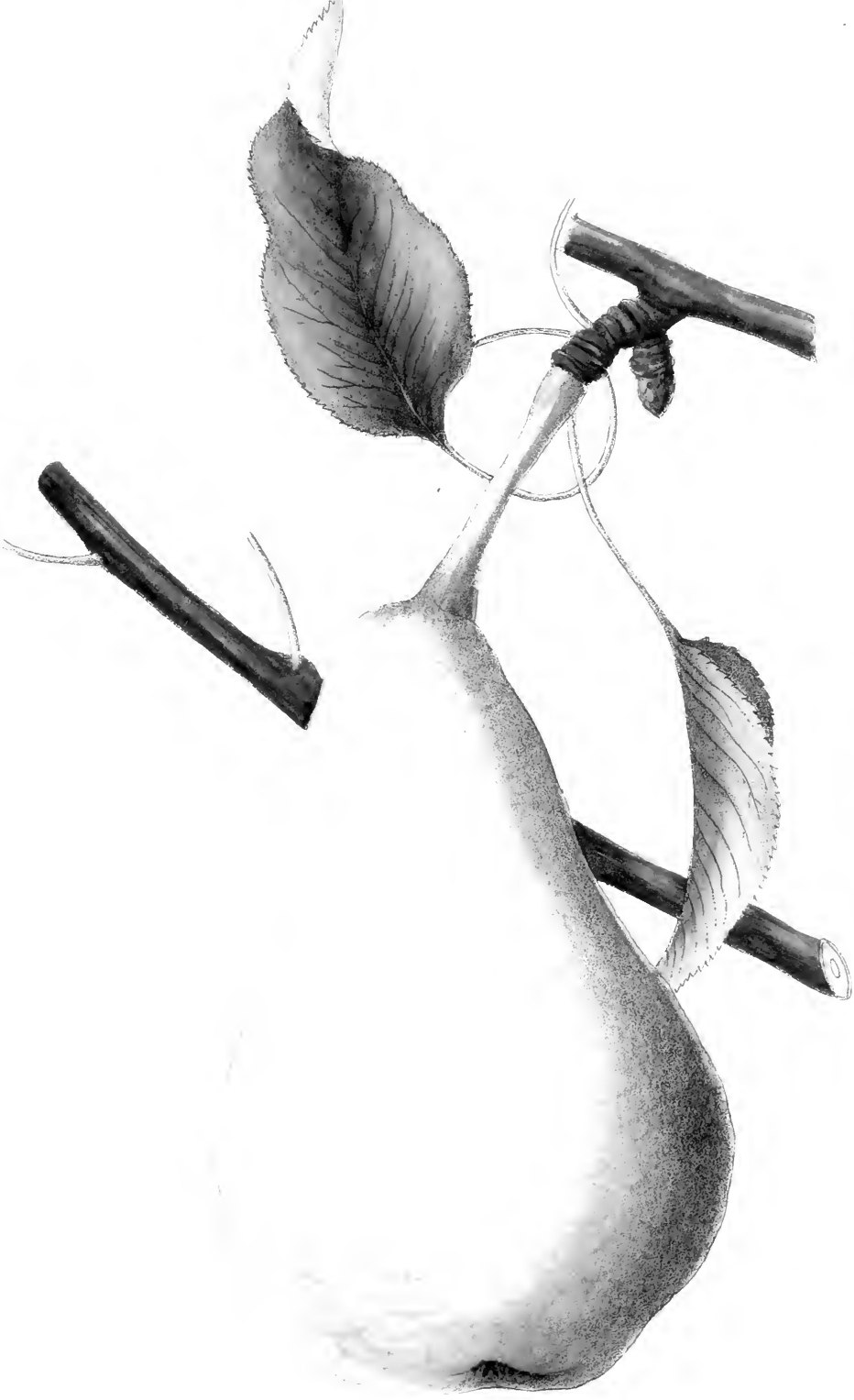
SEASON.—October and November.

TREE.

Very luxuriant in its growth, shoots upright, of a light brown color, and on the Quince, exceedingly productive.

REMARKS.

This noble fruit is said to have originated in a forest hedge, near Angers, in France, and was named in honor of the Dutchess of Angouleme. It is a magnificent pear of great excellence, and attains, on the Quince stock, a remarkable size. It succeeds best in a warm dry soil, and requires good culture. From standard trees the quality of the fruit cannot be relied on, but on the Quince stock, "it is," says Mr. Downing, "always fine." It ripens well, and is an excellent and profitable market pear.



Duchess d'Orleans

DUTCHESS D'ORLEANS PEAR.

FRUIT.

SIZE.—Large, averaging about three and a half inches long by two and a half in diameter.

FORM.—Oblong, pyriform, contracted slightly above the middle and tapering to the stem.

STEM.—Medium, varying from one and a quarter to one and a half inches in length, rather stout and fleshy at the base.

CALYX.—Small, open, short segments, set in a very shallow basin.

SKIN.—Smooth.

COLOR.—Greenish yellow, changing to golden yellow, frequently dotted and sprinkled with russet, and tinged with a red blush; sometimes having a bright red cheek in the sun.

FLESH.—Yellowish white, buttery, juicy and melting.

FLAVOR.—Rich, saccharine, and agreeably aromatic.

SEASON.—October.

TREE.

Upright, wood olive color, young wood light green, leaves narrow, dark blueish green, moderately vigorous.

REMARKS.

The Dutchess d'Orleans is a variety recently introduced from France, where it sustains a high reputation as a beautiful fruit of the first quality. It proves a very healthy and excellent variety on the Quince, and its productive qualities can scarcely be surpassed. Mr. Eliott, in his excellent work, "The Fruit Grower's Guide," remarks, "One little tree two years planted, this season (1854) yielded *forty three* beautiful specimens."

Flemish Beauty

FLEMISH BEAUTY PEAR.

FRUIT.

SIZE.—Large, often three and a half inches in length, by three in diameter.

FORM.—Obtuse obovate.

STEM.—Medium, one to one and a half inches long, inserted in a deep, narrow cavity.

CALYX.—Open, short segments, placed in a small round basin.

SKIN.—Slightly rough.

COLOR.—Pale yellow, nearly covered with spots and marblings of delicate russet, with a rich, reddish brown in the sun.

FLESH.—Yellowish white, a little coarse, very juicy and melting.

FLAVOR.—Rich, saccharine, with a slightly musky aroma.

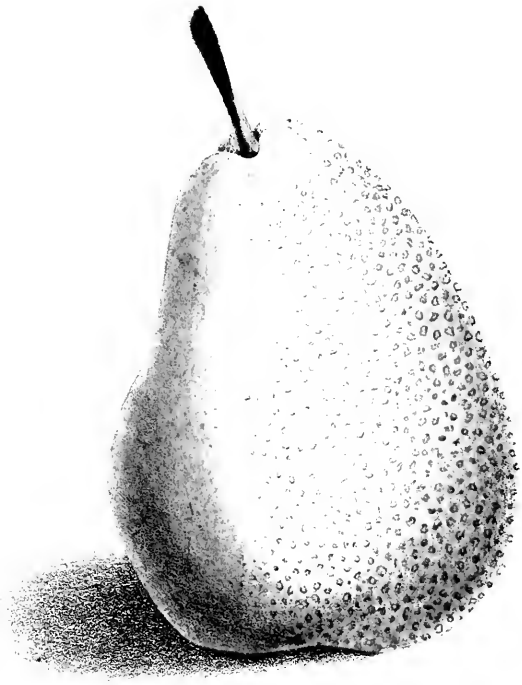
SEASON.—Last of September.

TREE.

Very luxuriant, the young shoots upright, of a dark brown color, bears early and abundantly.

REMARKS.

This variety is of Flemish origin, and is really one of the most beautiful and superb pears in the country. Mr. Downing in his admirable work, "*The Fruits and Fruit Trees of America*," says, "We have seen specimens grown on the banks of the Hudson during the past summer, which measured *twelve inches* in circumference, and were of the finest quality." It has been, by pomologists generally, highly recommended, and under good cultivation, when well ripened, is a fruit of highly delicious character. This fruit should never be suffered to mature on the tree, but must be gathered when green and ripened in the house. The tree is hardy and vigorous, and very uniformly productive. This variety succeeds best on the Pear stock.



BOELL LITH N.Y.

Forelle.

FORELLE PEAR.

FRUIT.

SIZE.—Medium, about three inches long, and two and a quarter in diameter.

FORM.—Oblong obovate, generally swollen on one side.

STEM.—Short, about an inch in length, slender, slightly curved, and inserted obliquely in a shallow cavity.

CALYX.—Small, slightly open, placed in an abrupt and moderately deep basin.

SKIN.—Smooth.

COLOR.—Yellowish green, changing to yellow when ripe, with a bright vermilion cheek in the sun, beautifully marked with large greyish dots, margined with deep crimson.

FLESH.—White, fine grained, juicy and melting.

FLAVOR.—Rich, and slightly vinous.

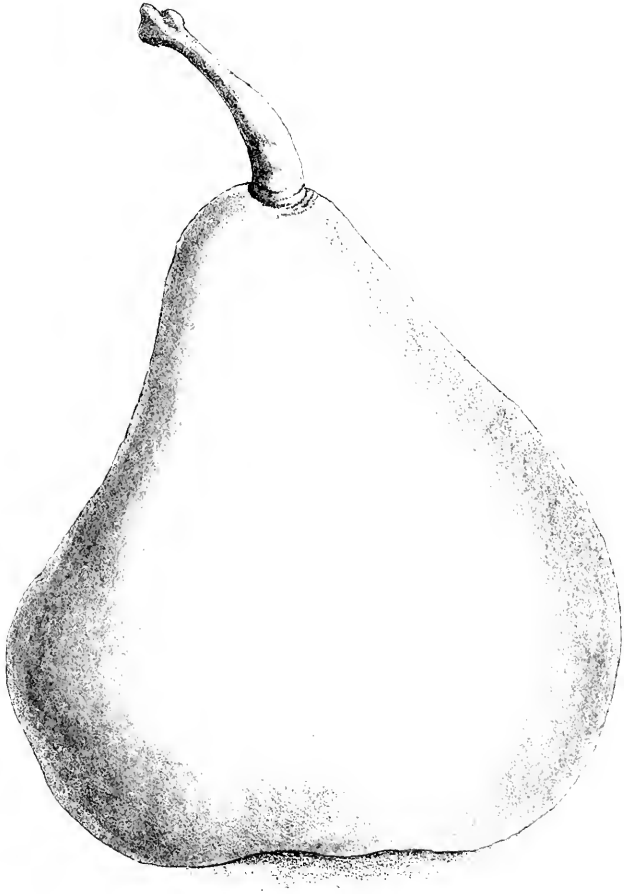
SEASON.—November to the middle of December.

TREE.

Vigorous, with long shoots, wood dark reddish brown, downy when young, very productive in a warm rich soil.

REMARKS.

This is one of the most beautiful of all the varieties of the pear, and is called in Germany where it originated, "*Forellen-birne*," or *Trout Pear*. It is a pear of very fine flavor, and as a dessert fruit of rare beauty, is very desirable. It succeeds best in a warm soil with a southern exposure, and when trained as an espalier, in full bearing, it is one of the most exquisitely beautiful fruits of the garden. Its foreign reputation is of the highest character, and in this country generally, it is spoken of in terms of high commendation. It succeeds well both on the Pear and Quince stocks.



Frederick of Wirtemburg.

FREDERICK OF WURTEMBERG PEAR.

FRUIT.

SIZE.—Large, about four inches long and nearly three in diameter.

FORM.—Angular pyriform, with rather an uneven surface.

STEM.—About one inch and a quarter long, curving, stout, usually thickening into the fruit,

CALYX.—Open, rather large, set in a shallow basin.

SKIN.—Smooth.

COLOR.—A fine deep yellow at maturity, with a very beautiful, rich crimson cheek on the sunny side.

FLESH.—White, buttery, melting.

FLAVOR.—Rich, saccharine, delicious.

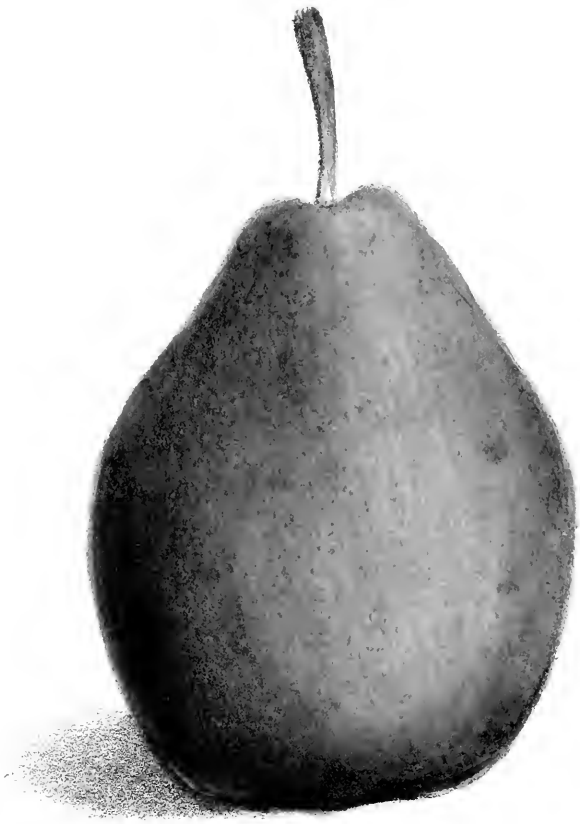
SEASON.—September.

TREE.

Very vigorous and upright, the wood, when young, strong and yellowish, with large expanded leaves.

REMARKS.

This large and beautiful fruit was first raised by Van Mons, and named by him in honor of Frederick, King of Wurtemberg. The tree is an early and productive bearer, and the fruit, if brought to perfection, really excellent. It should be gathered early, as the fruit has a tendency to decay at the core, even while apparently sound. Its beauty, when perfected, can scarcely be surpassed.



Gloud. Morceau.

GLOUT MORCEAU PEAR.

FRUIT.

SIZE.—Large.

FORM.—Obovate, obtuse pyriform.

STEM.—Medium, one to one and a half inches long, slender, and inserted generally in a small cavity, sometimes without depression.

CALYX.—Medium, partially reflexed, placed in a moderately deep basin, which is sometimes slightly furrowed.

SKIN.—Smooth and thin.

COLOR.—Yellowish green, marked with patches of olive brown, russeted around the stem, with small green dots over the entire surface.

FLESH.—White, fine grained, buttery, juicy and melting.

FLAVOR.—Rich, saccharine, slightly perfumed.

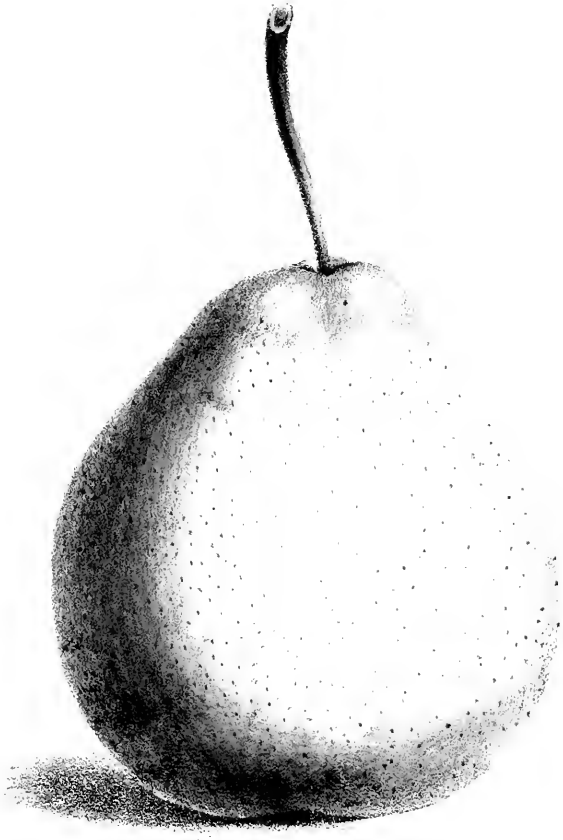
SEASON.—December and January.

TREE.

Very regular and symmetrical in form, requiring but little pruning to form a fine pyrimidal head, wood dark olive green, with beautiful foilage.

REMARKS.

The *Glout Morceau* is considered as among the most delicious Flemish Winter Pears, and is, we think, really one of the best of that variety. The tree is well adapted to our climate, and when at maturity is a very abundant bearer. Mr. Eliott describes it as rather slow in coming into bearing even on the Quince stock, but we have obtained very fine specimens the third year from the graft. On good soil it is very productive, both on the Pear and Quince stocks. This variety keeps best by being carefully packed in tight boxes as soon as gathered.



Golden Beurre of Bilboa

GOLDEN BEURRE OF BILBOA PEAR.

FRUIT.

SIZE.—Large.

FORM.—Regular, obovate.

STEM.—Long, slender, set in a moderately deep cavity.

CALYX.—Small, nearly closed, and placed in a slight basin.

SKIN.—Thin, smooth, very fair.

COLOR.—A fine golden yellow, dotted with brown, slightly marked with russet around the stem.

FLESH.—White, fine grained, tender and juicy.

FLAVOR.—Rich, vinous, and delicious.

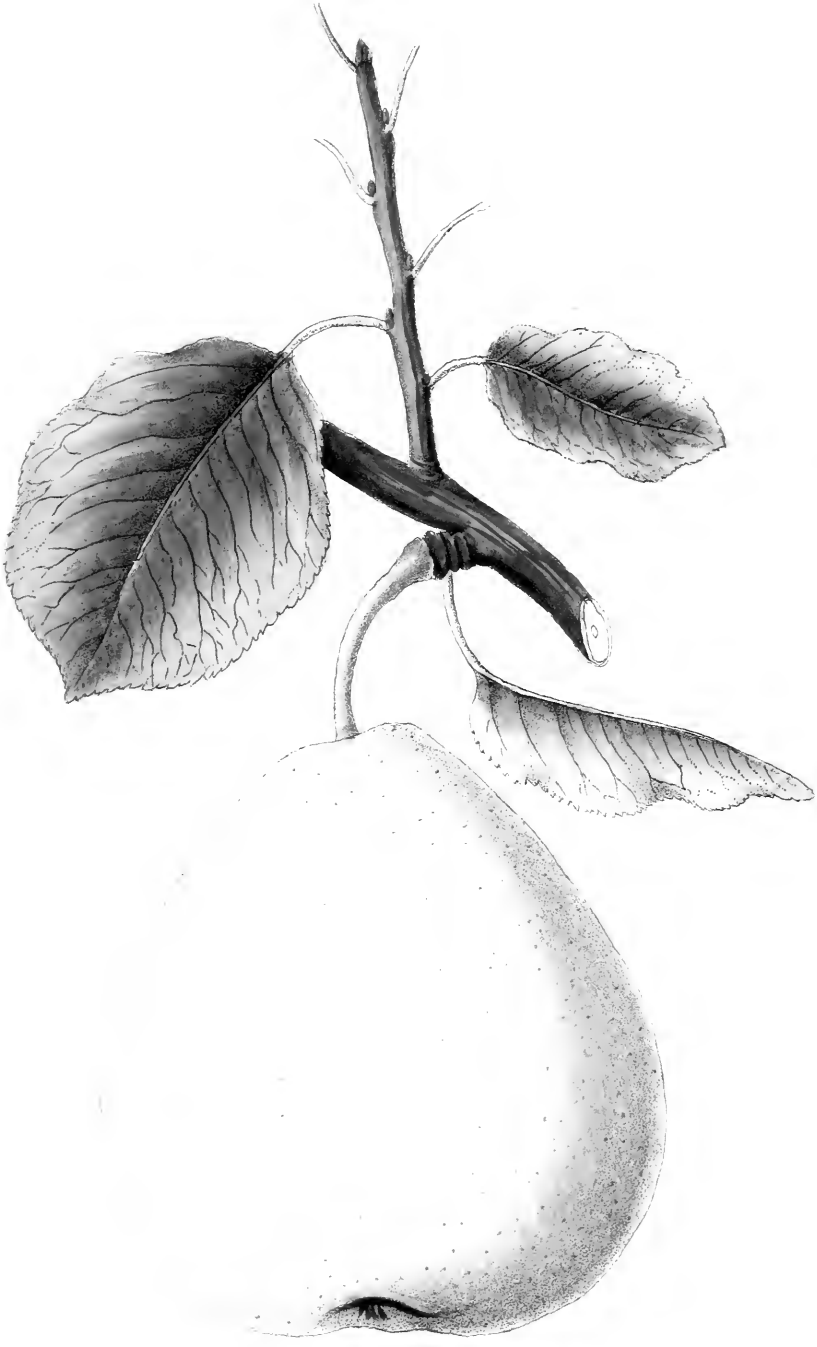
SEASON.—September.

TREE.

Vigorous, upright, shoots stout, erect, of a light yellowish brown color.

REMARKS.

This excellent pear was imported from Bilboa, in Spain, by Mr. Hooper of Marblehead, Mass., about twenty years ago, since which time it has become a favorite fruit in this country. Mr. Downing describes it as "a beautiful early autumn pear of the first quality." It succeeds admirably on the Quince stock, on cold and heavy soils, and bears abundant, regular crops of beautiful fruit.



Howell . Pear .

HOWELL PEAR.

FRUIT.

SIZE.—Large.

FORM.—Obovate, pyrimidal, shape uniform and regular.

STEM.—Medium, about one and a quarter inches in length, moderately stout, somewhat curved, and inserted without depression.

CALYX.—Open, set in a smooth, shallow, regular basin.

SKIN.—Smooth and thin.

COLOR.—Light green, changing to a pale lemon or straw color at maturity, sprinkled with small russet dots, having a faint blush, and not unfrequently a delicate red cheek on the sunny side.

FLESH.—White, fine grained, juicy, melting.

FLAVOR.—Rich, sweet, and pleasantly perfumed.

SEASON.—September, and sometimes into October.

TREE.

Upright, of a vigorous growth, wood and foilage beautiful.

REMARKS.

This fruit is a very fine variety which originated with the late Thomas Howell, Esq., of New Haven, Ct., and is pronounced by Mr. Barry to be "one of the finest fruits of American origin." In the *Horticulturist* of August, 1855, he remarks, "Last season we gathered from a single graft, set in an old tree in 1852, *three pecks* of magnificent specimens." Judging from the description of the fruit, it produces very abundant crops, both on the Quince and Pear stock. It should be gathered when quite green, and it will ripen in doors with a beautiful color, keeping about a month.

Laurence

LAWRENCE PEAR.

FRUIT.

Size.—Large.

Form.—Obovate, obtuse at the stem, a little irregular.

Stem.—Medium, rather stout, enlarged at the end attached to the tree, and inserted in a deep cavity.

Calyx.—Large, nearly closed, set in a slightly furrowed basin, of medium depth.

Skin.—Smooth.

Color.—Pale yellow, with dull green patches and marblings, and brown specks.

Flesh.—Yellowish white, juicy, melting and buttery.

Flavor.—Rich, saccharine, delicious.

Season.—November to March.

TREE.

Tolerably vigorous, hardy, light yellowish brown shoots, rather slender, very productive.

REMARKS.

The *Lawrence* is a variety of the pear of recent introduction, being a seedling that originated at Flushing, L. I., and very highly recommended by some of the best horticulturists in the country. It is said to be a vigorous and hardy variety, yielding large and annual crops of a most excellent quality. Mr. Elliott recommends it as "an abundant bearer on Pear roots, and exceedingly desirable for western orcharding." Mr. Barry says it succeeds well on both the Pear and Quince stock, and "ripens well in the cellar."

Louise Bonne de Jersey

LOUISE BONNE DE JERSEY PEAR.

FRUIT.

SIZE.—Large.

FORM.—Pyriform, generally a little one sided.

STEM.—About an inch long, curved, obliquely inserted without depression, often with a fleshy base.

CALYX.—Open, set in a shallow uneven basin.

SKIN.—Smooth and glossy.

COLOR.—Green in the shade, changing to yellow at maturity, often with a beautiful blush or fine red in the sun.

FLESH.—White, slightly greenish, very fine grained, melting, juicy, and highly flavored.

FLAVOR.—Rich, saccharine, excellent.

SEASON.—September and October.

TREE.

A vigorous upright grower, hardy, making fine upright shoots, and exceedingly productive.

REMARKS.

This fine Pear originated in Avranche, in France, in 1788, but having been first obtained by the London Horticultural Society from Jersey, it received, in consequence, its present popular name. It is an excellent Autumn Pear, and very prolific. Mr. Downing says "It succeeds admirably in this country, and is one of the best Autumn Pears, fair and glossy, exceedingly juicy, and well flavored." We have gathered beautiful specimens of the most delicious flavor from very young trees on the Quince stock, received from France, the same year of their importation. The tree is a fine grower, and excellent bearer both on the Pear and Quince stocks.

Mann Lucas

MARIE LOUISE PEAR.

FRUIT.

SIZE.—Large, measuring about three and a half inches in length, and two and three quarters in diameter.

FORM.—Oblong pyriform, generally irregular, or one sided.

STEM.—Medium, about an inch and a half long, and inserted obliquely in a very small cavity.

CALYX.—Small, open, set in a narrow, irregularly formed basin.

SKIN.—Tolerably smooth.

COLOR.—Pale green, changing to a fine yellow as it ripens, with profuse sprinklings and marblings of light russet, especially around the stem and crown.

FLESH.—White, very buttery and melting.

FLAVOR.—Rich, saccharine and vinous.

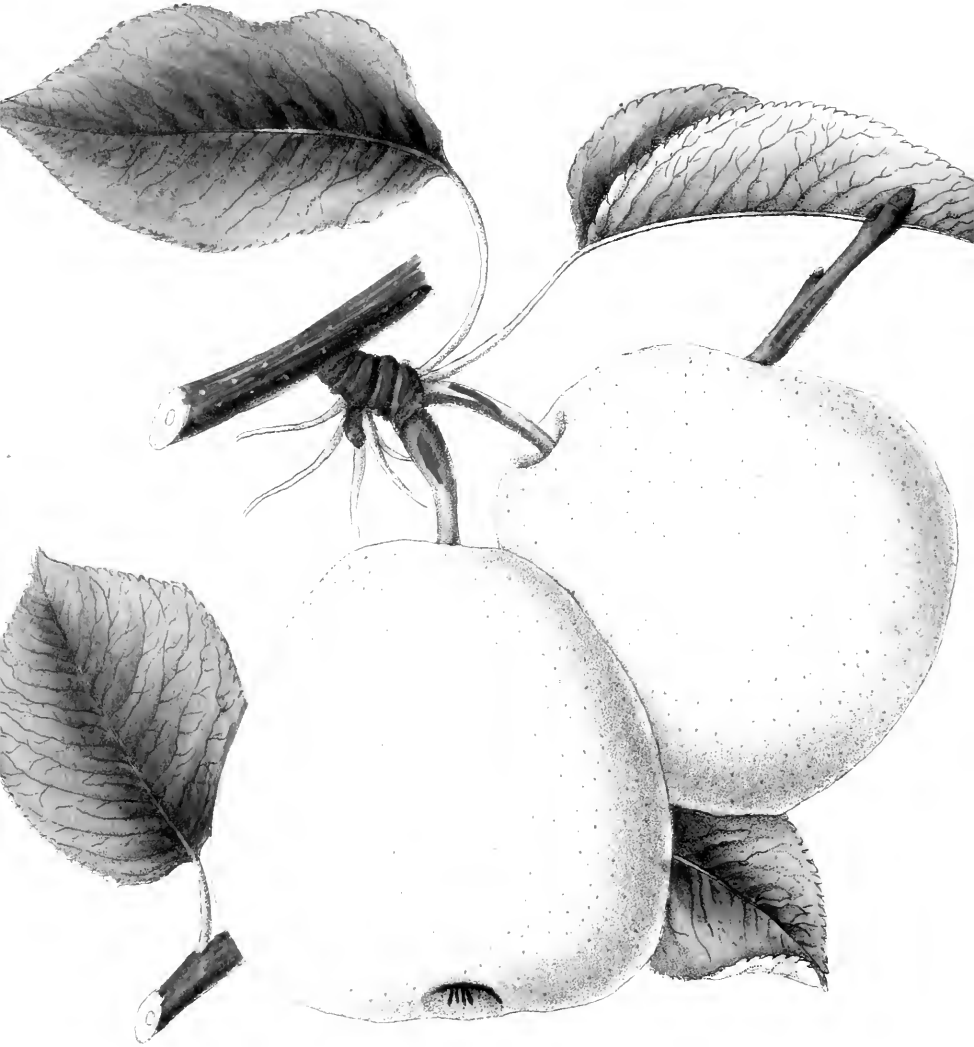
SEASON.—Last of September and October.

TREE.

Hardy and vigorous, straggling or drooping in its habit, young shoots a grayish olive color, diverging branches and narrow leaves. Very productive.

REMARKS.

This is a very fine pear of Belgian origin, first raised from seed in 1809, and introduced into England in 1816. It has been cultivated in this country about twenty-five years and is regarded as a pear of great excellence. It is perfectly hardy, very productive as a standard, and well adapted to general culture; requiring a rich, warm, and rather sandy soil to produce the fruit in its perfection. It bears young and regularly, but succeeds well only on the Pear stock.



Sand's Summer Pear

OSBAND'S SUMMER PEAR.

FRUIT.

Size.—Medium, about two and a half inches in height and same in diameter.

Form.—Obovate, pyriform.

Stem.—About an inch long, rather stout, inserted in an uneven, shallow cavity.

Calyx.—Large, with long open segments, set in a shallow basin.

Skin.—Smooth, rather thick.

Color.—Pale yellow, with small green dots, frequently a faint blush in the sun.

Flesh.—White, slightly tinged with yellow, melting, juicy, sweet.

Flavor.—Pleasant, slightly musky.

Season.—August 10th, to September.

TREE.

Erect, regular, foilage and young shoots somewhat woolly, moderately vigorous and very productive.

REMARKS.

This fine Summer Pear, originated in the vicinity of Palmyra, Wayne Co., N. Y., about forty years ago, and was brought into notice through the *Horticulturist*, by Wm. R. Smith of Macedon. It resembles the White Doyenne in many points, and is called by some the Summer Virgalieu. The tree bears large crops of very fine fruit, which should be gathered early, before turning yellow, and ripened in the house, when it becomes melting, juicy, and delicious. Succeeds well on the Quince stock.

ROLL LITH N Y

Seckel

SECKEL PEAR.

FRUIT.

Size.—Small.

Form.—Obovate, obtuse pyriform.

Stem.—Short, half to three fourths of an inch long, slightly curved, and inserted in a slight depression.

Calyx.—Small, open, set in a slightly sunk basin.

Skin.—Thin, tender, and slightly rough.

Color.—Brownish green at first, changing to a dull yellowish brown, with a fine russet red cheek.

Flesh.—Yellowish white, very juicy, melting and buttery.

Flavor.—Rich, sweet, spicy, and aromatic.

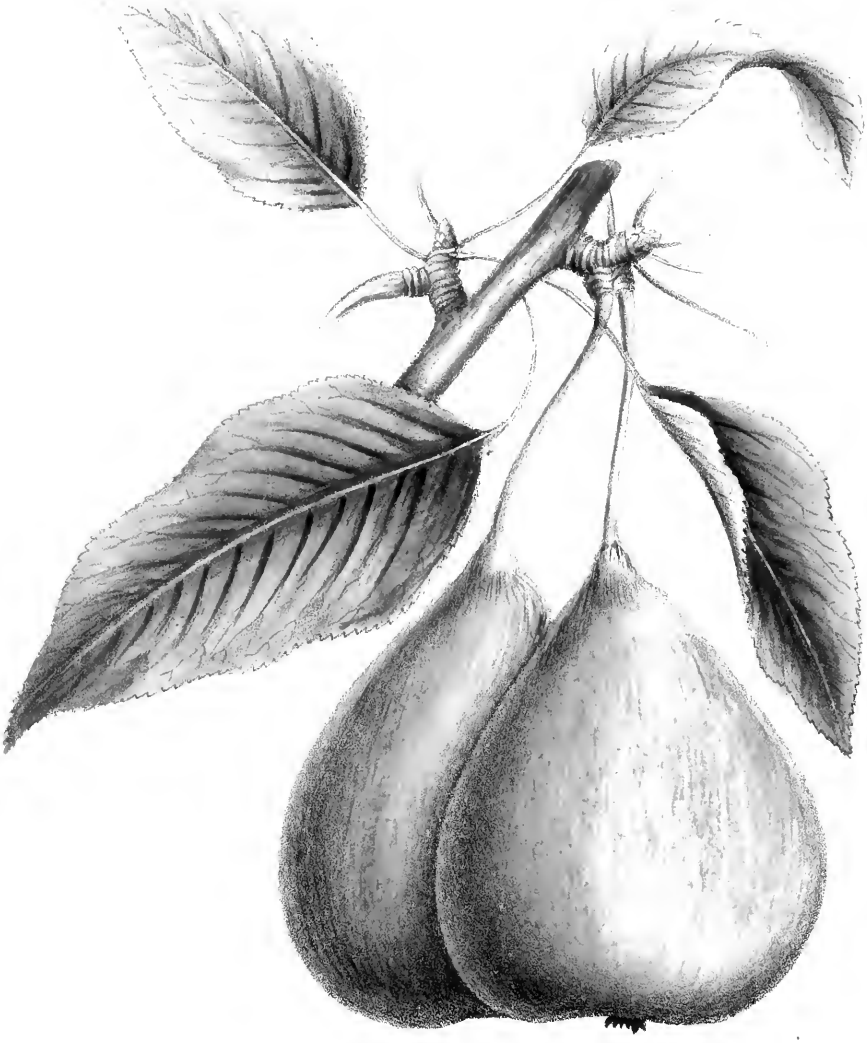
Season.—September and October.

TREE.

Slow in its growth, wood short jointed, stout, upright, olive colored, form regular and compact.

REMARKS.

This exquisitely flavored pear originated near Philadelphia, on lands formerly belonging to the Holland Land Company, which afterwards became the property of Mr. Seckel, who first introduced it to public notice, and from whom it received its name. Its honied, spicy and delicious flavor is scarcely equalled by any foreign variety. The London Horticultural Society admits that it exceeds in flavor the richest of the English autumn pears. It is a moderate grower even on the Pear stock, making a fine round head of medium size. Double worked on the Quince, it succeeds finely, increasing considerable the size of the fruit. It requires a warm, rich, well cultivated soil, and forms a beautiful, hardy tree, well adapted to garden culture.



Cyrus

TYSON PEAR.

FRUIT.

SIZE.—Medium.

FORM.—Obovate pyriform, rather irregular.

STEM.—Medium, about an inch long, stout, slightly curved, fleshy where it joins the fruit, obliquely inserted without depression.

CALYX.—Open, short segments, set in a shallow, regular basin.

SKIN.—Slightly rough.

COLOR.—Brownish yellow, sprinkled with russet, with black specks, and tinged with red in the sun.

FLESH.—White, juicy, fine grained and melting.

FLAVOR.—Rich, saccharine and aromatic.

SEASON.—August and September.

TREE.

A rapid grower, with upright branches, and reddish brown wood, very vigorous, hardy and productive, particularly on the Quince stock.

REMARKS.

The *Tyson Pear* is a seedling which originated on the grounds of Mr. Jonathan Tyson, of Jenkintown, near Philadelphia, about sixty years ago, the original tree of which is still living. It is rather a tardy bearer on the Pear stock, but bears abundantly and young on the Quince. Mr. Barry says "A small pyrimidal tree, only four years old, was last season covered from top to bottom with fruit. The tree was healthy and vigorous, and the fruit of full size and highly colored." It is an excellent summer pear, and worthy of general cultivation.

Ulrianste

URBANISTE PEAR.

FRUIT.

SIZE.—Medium to large.

FORM.—Obovate pyriform.

STEM.—Generally about an inch in length, moderately stout, and inserted in a distinct, well marked depression.

CALYX.—Small, generally closed, set in an abruptly sun'ken basin.

SKIN.—Fair and smooth.

COLOR.—Pale yellow, sometimes inclining to russet, with gray dots and specks of russet.

FLESH.—White, yellowish at the core, rich, buttery, very juicy and melting.

FLAVOR.—Vinous, delicately perfumed, and delicious.

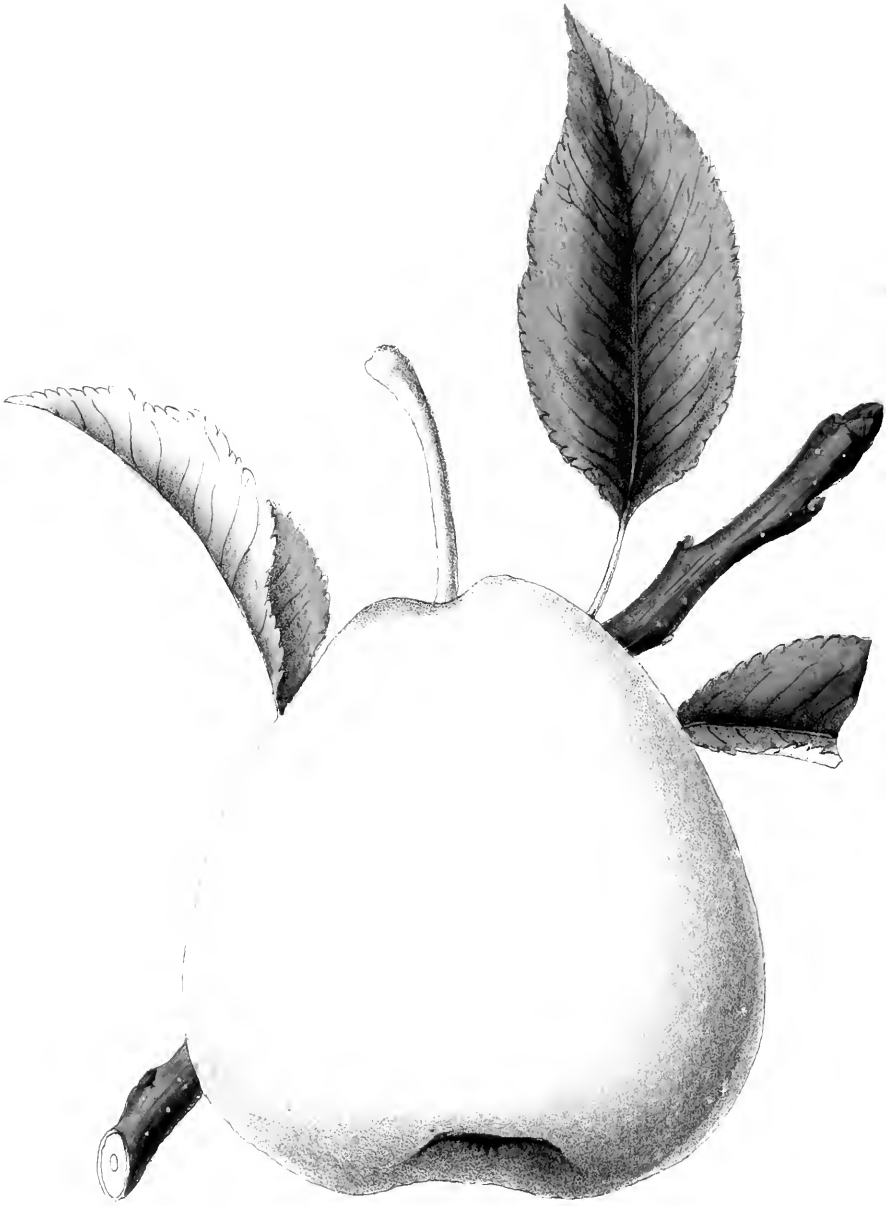
SEASON.—October and November.

TREE.

A moderately vigorous grower, very hardy and healthy, with upright grayish yellow shoots, regular and handsome in form and appearance.

REMARKS.

The Urbaniste is a Flemish Pear, first grown in this country by Mr. Lowell, of Boston, in 1823. It sustains, both here and in Europe, the highest reputation as one of the best late autumn varieties. In flavor it compares favorably with the delicious "White Doyenne" or "Virgalieu," having, however, more of a vinous character. It is a pear of very fine appearance, of very healthy habit, and succeeds in localities where some of the more delicate varieties fail. The tree is regular and symmetrical in form, and although not quite so early a bearer as some other varieties, when it begins to bear it produces abundant, regular crops of fair beautiful fruit, succeeding well, both on the Pear and Quince stock.



The Van's Assche Pear.

VAN ASSCHE PEAR.

FRUIT.

Size.—Large, three inches in height and the same in diameter.

Form.—Obtuse, obovate, largest near the eye, sometimes a little ribbed.

Stem.—Rather long, about one and a half inches in length, slender, and inserted in a slight depression.

Calyx.—Small, set in a shallow, smooth basin.

Skin.—Smooth and generally very fair.

Color.—Pale yellow, with a delicate red cheek on the sunny side, dotted with a rich, deep brown.

Flesh.—White, fine grained, buttery, melting.

Flavor.—Rich, slightly aromatic, delicious.

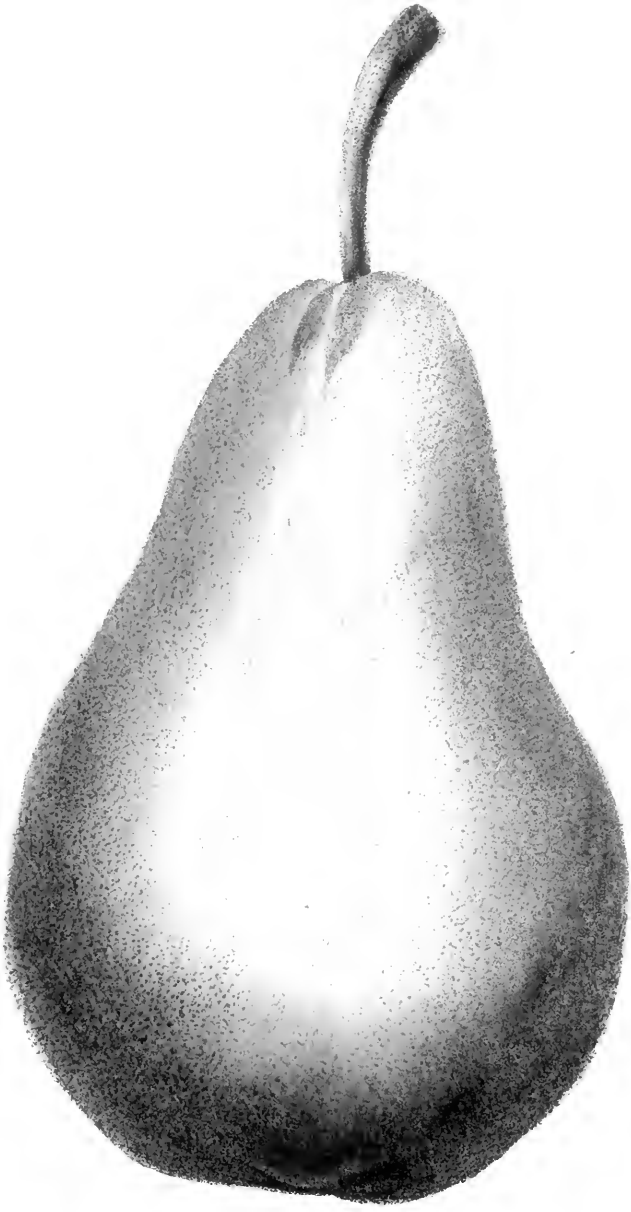
Season.—Middle to last of September and early October.

TREE.

Erect, thrifty, with dark colored shoots. A vigorous grower and abundant bearer.

REMARKS.

The Van Assche or Van Assene Pear, from the Belgian catalogue, is a new variety not yet extensively cultivated in our country. The "American Pomological Society" have classed it among the "new varieties that promise well." Mr. Barry, whose authority will not be questioned, says, "The quality is very good, quite equal, as far as we have been able to judge, to the Buerre Diel or Flemish Beauty." The tree is vigorous in its growth, bears early and abundantly, and succeeds well on the Quince stock.



VAN MONS LEON LE CLERC PEAR.

FRUIT.

SIZE.—Large, about four and a half inches long, and three in diameter.

FORM.—Oblong, obovate pyriform, very regular.

STEM.—Medium, about an inch and a half long, rather stout, slightly curved, and obliquely inserted in a slight depression.

CALYX.—Large, open, with broad flat segments, placed in a shallow basin.

SKIN.—Slightly rough.

COLOR.—Yellowish green, with small, irregular dots and marblings of russet, more strongly marked near the stem; sometimes with a delicate blush on one side.

FLESH.—Yellowish white, buttery and melting.

FLAVOR.—Rich, saccharine, sprightly, and perfumed.

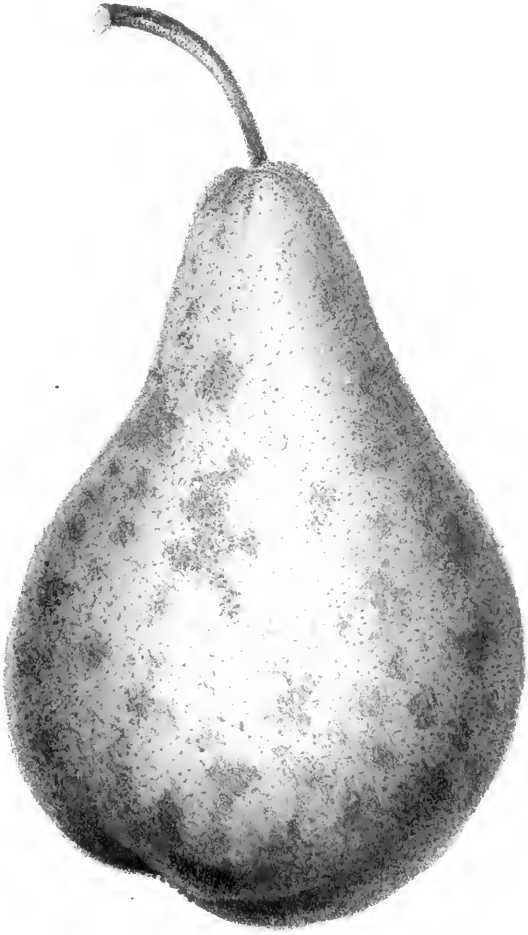
SEASON.—October and November.

TREE.

Moderately vigorous, upright, light olive wood, with grayish shoots, marked with light round spots. It bears young and abundantly, particularly on the Quince.

REMARKS.

This noble fruit was produced from seed by Mr. Leon Le Clerc, and named by him in honor of Van Mons, the distinguished horticulturist. It was first fruited about twenty years ago, and was introduced into this country from the island of Jersey, in 1840. It is very favorably noticed in the transactions of the Massachusetts Horticultural Society, and sustains a very high reputation generally. It is well adapted to the Quince stock and bears fair crops, requiring good soil and culture. Scions commence bearing in about three years, and either on the Pear or Quince succeed admirably.



VICAR OF WINKFIELD PEAR.

FRUIT.

Size.—Large, about four inches in length, and two and a half in diameter.

Form.—Oblong, obovate pyriform, generally a little one sided.

Stem.—Medium, an inch to an inch and a quarter long, rather slender, and inserted obliquely without depression.

Calyx.—Large, open segments, placed in a shallow basin.

Skin.—Smooth.

Color.—Dull green, changing to a pale yellow, marked with brown dots, and frequently with a brownish cheek.

Flesh.—Greenish white, juicy, sometimes a little astringent.

Flavor.—Sprightly and good.

Season.—November to January.

TREE.

Hardy, vigorous and thrifty, with dark olive diverging shoots, drooping fruit branches, and beautiful, rich, glossy leaves.

REMARKS.

This Pear was first discovered in a forest in France, by a French Curate, and is familiarly known there by the name of *Le Cure.* Having been afterwards grown in Winkfield, in Berkshire, England, by Rev. Dr. Rham, it received the name which it bears in this country. It is a good winter pear, and quite popular among fruit growers generally, the tree being very hardy and productive on both the Pear and Quince stocks. The New York State Agricultural Society recommends keeping the fruit where the temperature is not much above the freezing point, until a few days before it is required for eating, then to wrap it in cotton and keep it in tight boxes in a warm room for a few days, when it acquires a rich, delicious flavor.

White Doyenne (virgalieu)

WHITE DOYENNE PEAR.

FRUIT.

SIZE.—Medium, good specimens measuring about two and a half inches long, and the same in diameter.

FORM.—Obovate pyriform, varying in different localities, in form and size, frequently growing longer or shorter on the same branch.

STEM.—Rather short, three fourths to an inch and a quarter long, slightly curved, and inserted in a small round cavity.

CALYX.—Small, closed, and placed in a shallow, slightly furrowed or plaited basin.

SKIN.—Smooth and fair.

COLOR.—Clear pale yellow, with small dots regularly sprinkled over the entire surface, and frequently with a fine, rich blush on the sunny side.

FLESH.—White, fine grained, juicy, melting and buttery.

FLAVOR.—Rich, delicious, slightly perfumed.

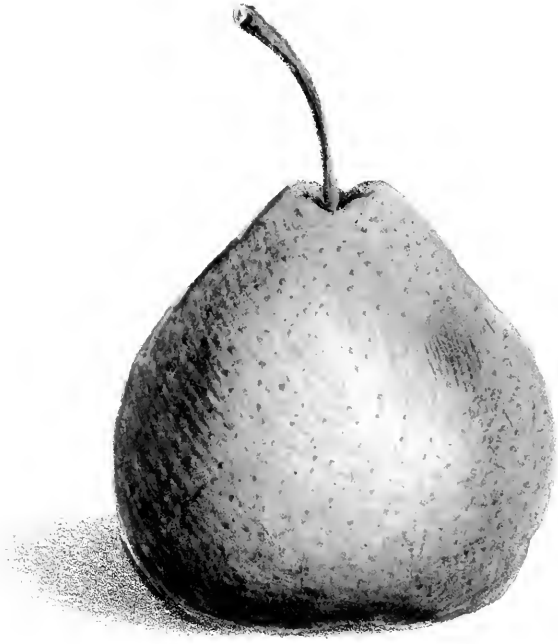
SEASON.—September to the middle of November.

TREE.

Of vigorous growth, regular form, with strong, upright, yellowish gray, or light brown branches—very productive.

REMARKS.

The *White Doyenne*, known as the "*Virgalieu*" of New York, and the "*Saint Michael*" of the Eastern States, is an old French variety, too well known to require a very particular description. It is, when perfectly grown, one of the most delicious and extensively popular pears in the country. Its excellence is proverbial, although in some localities complaints have been made of its liability to crack when grown on the Pear stock. It varies in form and size considerably on the same tree, but generally succeeds well on both Pear and Quince, bearing young and very abundantly. Its usual season for ripening is September, but by gathering the fruit when a little green, and keeping it in a cool, darkened room, we have kept good specimens until the middle of December.



Winter Nelis.

WINTER NELIS PEAR.

FRUIT.

SIZE.—Medium.

FORM.—Obovate, a little narrowed near the stalk.

STEM.—About an inch and a half in length, curved, and inserted in a narrow, moderately depressed cavity.

CALYX.—Rather small, open, with short, stiff segments, placed in a shallow basin.

SKIN.—Slightly rough.

COLOR.—A heavy yellowish green, dotted and streaked profusely with russet, nearly covering its entire surface.

FLESH.—Yellowish white, fine grained, juicy, melting and buttery.

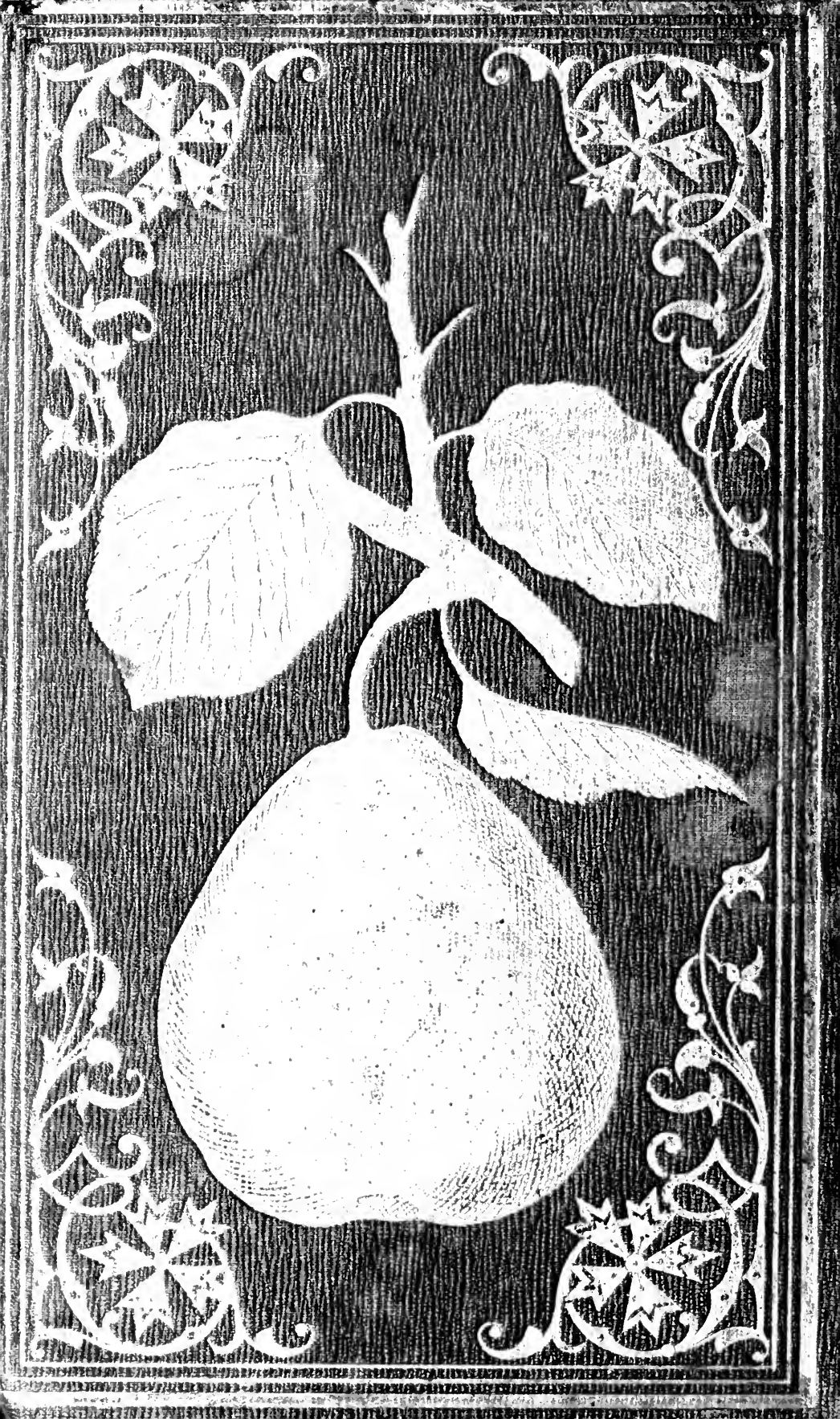
FLAVOR.—Rich, saccharine, aromatic, delicious.

SEASON.—December and January.

TREE.

Very hardy and vigorous, with rather slender, diverging branches, wood light olive color, a regular and prolific bearer.

REMARKS.

The *Winter Nelis* sustains the reputation of being one of the *best* winter varieties of the pear. It is of Flemish origin, and succeeds admirably in this country, being hardy, prolific, and a constant, successive bearer. It requires a rich, well cultivated soil, succeeds admirably on the Quince stock, and frequently requires thinning on the branches from its too heavy crops. As a rich, delicious, early winter fruit, it is unsurpassed, and its culture cannot be too highly recommended. To *keep well*, it should be carefully packed in tight boxes soon after being gathered from the tree.

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